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**EXPRESS**  
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GIVE-  
AWAY  
Page  
46

Issue 95 • 1 September 1990 • 58p

# NEW **COMPUTER EXPRESS**

**BRITAIN'S BIGGEST SELLING COMPUTER WEEKLY**

## AMIGA

- Viva multimedia
- Puzzle out Plotting
- Quick shortcuts

## ST

- Deluxe Paint at last
- Colour Calamus
- Harley biking game

## PC

- Teletext on screen
- The ultimate laptop?
- Copying files faster

## ARCHIMEDES

- Spreadsheet preview
- Screen grab tips

## CPC

- Console analysis

Specialist columns for:  
PCW•C64•MSX•QL•BBC  
SPECTRUM•SAM•PD

**BARGAINS!**  
28 value-packed pages in  
**SHOPPING EXPRESS**

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The best of the Amiga Animation Festival

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spotted using British high  
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## Computer ends Grace Darling's heroic era

A computer is to replace the keeper at Longstone Lighthouse in Northumberland - scene of Grace Darling's famous and heroic rescue of shipwrecked sea-givers over 150 years ago.

At the end of next month the current keepers Gordon Medcott and Ken Rowley will be replaced by an automatic system which will control the lights. It will be able to detect the weather and react accordingly.

In 1838 the steamer *Ferretshire* carrying 60 passengers broke up on the treacherous rocks of Farne Island. The then-keepers, Grace Darling and her father, sailed out through terrible seas in a rowing boat to save 11 survivors. The story has entranced millions of children ever since.

Gordon Medcott said: "There can be no Grace Darling alert any more. Microchips cannot rise out to the rescue and they cannot make those human decisions to risk danger which meant the difference of



• Grace Darling: no computer heroism.

life and death to those survivors Grace and her father rescued against all the odds."

He said technology had made the coastlines a safer place but added: "No

technology could substitute for what they did that day." While working on a different lighthouse Medcott saved a drowning man, for which he was given a bravery award.

## Atari version joins Amiga and PC

DELUXE PAINT  
OUT ON THE ST

*Deluxe Paint*, the hugely popular paint, animation and pricing package is finally available for the ST.

A program of the same name has been available for the Amiga and PC for some time and is held in high esteem by owners of those machines. Indeed, Commodore is offering the program to new Amiga owners.

*Deluxe Paint ST* was not written by the team which produced the Amiga version, but publisher Electronic Arts says it's just as good.

The software includes 599 animation buffers, each one being able to hold 999 frames. It can read Amiga FF format files as well as all recognized ST graphics file-formats. Attributes which give colour mixing are included, as are proportional fonts and full bold editing, halftone and colour poster printing, and real time magnification on all tools are also available to the user.

*Deluxe Paint* will run in 512K of memory, and for STE owners there is an extended palette.



• *Deluxe Paint*: on the ST at last.

Electronic Arts claims that the ST package will rival "those of the best selling, and most highly regarded paint program on the Amiga, *Deluxe Paint II*."

Electronic Arts will be offering the program at an introductory price of £49.99 on its release in late September. This is £10 cheaper than the full £59.99 price which comes into effect on December 1.

For more information, contact Electronic Arts on 01753 49442. ■  
• Watch out for the chance to win a copy of *Deluxe Paint*, coming soon.



• *Powermonger*: Populous follow up.

## Hey Bullfrog

Fans of Bullfrog's perplexing strategy game *Populous* are seen to be treated to the follow-up *tda*, *Powermonger*.

It's out on the ST and Amiga in about six weeks time and has already been hailed as a winner by those lucky enough to see preview copies. *Powermonger* takes the player to a living world where each individual has an occupation, a home and a level of intelligence. It's your job to consider new territories and generally be hostile to the people already living there. It's all drawn in 3D vector graphics. In *Populous*, there are 200 territories to conquer through bribery, corruption and dishonesty. It's published by Electronic Arts and will cost £29.99. ■

## Highly defensive TV

High Definition Television is to receive funding from the United States Defense Department because it is seen as being in their national interest. Costs for the £1 million project will be shared with American firm, Zenith.

Zenith sees HDTV as being the standard for computer monitors, workstations and commercial television. ■

## Russians abandon guns for Spectrums

A factory which once churned out military hardware for the Soviet armed forces has been converted into a computer workshop.

The plant in Leningrad, Russia, will now be making

Spectrum-compatible machines for Eastern schools.

The project has been taken on by a number of companies working under the banner *Arsenalevich*.

The machines are unique

by Soviet standards because

they are relatively affordable.

"Our customers have a limited supply of money and cannot afford to buy PCs," said Moscow representative Dmitry Potapov. "Our computers, which

come with educational software, are a good alternative. Sales are brisk and demand is high," he added.

The 280-based 8-bit machines cost about £100 and will be sold to schools. ■



Secret code systems banned from export but fall into Iraqi hands

# BRITISH COMPUTER SYSTEM SHIELDS IRAQ'S SECRETS

British-made computer equipment has fallen into the hands of the Saddam Hussein's regime and is being used to protect high-level Iraqi military communications.

As a result, the UN forces will find it virtually impossible to use electronic spying techniques to anticipate Iraqi movements during the Gulf crisis. Encoded messages produced by the system would take NATO's most powerful computers a lifetime to decipher.

Britain leads the field in the application of computers to the coding of messages, and has done so since the Second World War. The secret techniques employed are jealously guarded.

Quite how Iraq obtained the equipment remains a mystery, and the nature of the device itself is shrouded in secrecy.

Iraq's possession of the equipment was only discovered by chance.

Robert Matthews of The Sunday Correspondent reported that an unpublished photograph, taken months ago, showed Iraqi army officers and the

encoder shown clearly in the background.

All exports of encryption technology must be passed by the Government's Communications Headquarters based in Cheltenham, and it seems highly unlikely that the Iraq acquisition was officially sanctioned.

A GCHQ spokesman told Express: "We do not comment on anything of an operational nature. Operational in this sense is defined as classified."

Such a sophisticated encoder could be as small as a microprocessor and would be easy to smuggle through customs. Iraqi diplomats may have used their privileges to export the equipment without official sanction, or an Iraqi front company could have been registered with a British address and used to acquire the technology.

Alternatively, sophisticated software could have been transmitted via modems to Iraq over the standard telephone network - PKZip, an encoding program banned from export by the American government because freely available as shareware by this route.

Mike Jones, a technical representative from Camtech, a British company that specialises in encryption techniques, told Express: "Modern encoding devices come in both hardware or software form and can be used to code and decode voice and data transmissions. Data sent from one computer to another can be encrypted during transmission."

The encoder is thought to work by converting the written or spoken word into a digital signal. That signal is combined with a 'keystream' which comprises a series of numbers keyed in by the operator. Because the numbers are randomly introduced, it is virtually impossible for a third party to crack the code.

This process is further complicated by the fact that the coded messages are then looped back on themselves to be used as their own keystream, forming yet another layer of code. ■



• Saddam Hussein: keeping his communications secret by using British computers.

## America bans export of anti-hacking equipment

The US National Security Agency (NSA) recently banned the sale of sophisticated anti-hacking equipment because its export would affect their own spying activities.

The NSA is keen to keep tabs on commodity, troop and personnel movements by hacking into other countries' signals. Like the Iraq-held equipment, the system encodes telephone communication signals using massive numbers so that the NSA computers would be kept on busy decrypting data that any recovered would already be out of date.

Britain has had a long, and successful history of in encryption-decryption techniques. GCHQ itself is one of the largest and most complex spying stations in Europe.

During World War II, the code and cipher school at Bletchley Park was set up to break the German Enigma codes. Among the scientists who worked there

were Stuart (later knighted) Milner-Barry and the legendary Alan Turing.

The team, on what was known as Project Ultra, worked day and night intercepting and analysing German communications until they cracked the code. Winston Churchill always maintained that the success of Ultra was instrumental in the winning the war.

Turing is still widely quoted in the computing and encryption-decryption, at the age of 24 he published a paper which mapped out the theoretical basis of computing. His work on Project Ultra was carried out in his early thirties. Success could not save him from a tragically early death in 1952 at the age of 42.

## Picture the scene

The Edinburgh Festival played host once again last week to the annual Aniga Animation Festival - with an A3000 up for grabs to the best artist.

In all there were 11 prize-winning animations but the free computer went to Eugene Messina with his Main Video animation (pictured left). That featured smart imagery of a simple desktop and imaginative camera work over mundane articles such as a Coca Cola can, alarm clock and framed photograph.

It was all generated on an Aniga using Turbo Silver and recorded in five second sections onto a VHS recorder using a modulator.

• For a report on the animation festival turn to page 46.



• Top quality colour, at a price.

## Millions of colours

Sublimation dye printers can now offer superb quality 16,000,000-colour images from CAD drawings with new PC-based software.

Sony's new Imagerprint can print any AutoCAD image, and combine several into one sheet. Combined with Mitsubishi printers it can be used on a PC, freeing the workstation.

Prices begin at £5,000. Further information on 0707 278608. ■



**Shops lobby for £1 increase in cassette prices**

# GAMES BUYERS FACE BUDGET PRICE RISES

Speculation is growing that a number of top games software publishers are considering a £1 price hike for their budget games.

At present most budget games cost £2.99. However some publishers, distributors and dealers feel this price does not leave enough room for worthwhile profits.

At present the debate is occupying the minds of senior business people in the software trade - most budgeteers have yet to come to a decision.

Last week though the National Association of Computer Retailers called for a new price point of £3.99. The dealers say they are not making enough money from low cost software. This follows the liquidation of a number of software retailers during a poor summer. Dealers are also blaming inflation rates and the new business tax.

Chairman Vic Parnell told Express: "It's unfair in this financial climate. Budget games make up about 80 per cent of our business but we're not really making any money from them. That's no good for games players. If we're not making money we might as well give up and then there will be nowhere to buy software. This is in the interests of consumers and those of us in the trade."

Not surprisingly software publishers are not keen to commit themselves yet although it is understood that a few major players will be making announcements of



• Budget scene: cheap software prices going up?

price increases in the near future.

At Klax - US Gold's label - Roger Swindells said no action would be taken as a response to the dealer requests. He said that any decision would be "our business". "We'll be making announcements at the leisure show and until then we've no comment to make," he said.

At Epyx, boss Steve Wilcox said he would be discussing the matter with trade partners and "looking carefully at the situation".

Mastertech's budget product manager Andrew Wright commented: "I'd like to see a new price but we'll have to wait

and see what our competitors are doing. We also have to decide whether or not the consumer will tolerate such a price rise." He said any hike would not affect old games which would stay at £2.99. Some are still priced at £1.99.

Cult's Tony Huggard and CodeMasters' Mike Clarke both felt the £2.99 price was fair to everyone. Nevertheless, trade sources insist that prices will be forced up before Christmas.

But any changes will not be a concerted industry wide effort. It is illegal for any business associations to fix prices. ■



• This intriguing device has them all hopping around in the land of Macintosh desktop publishing. It's a combination of a hand-held scanner and a character recognition device and is called the Typist.

Essentially, all the text you scan is checked straight through the keyboard buffer and the result can then be edited on-screen. Scanning text in the past has been a cumbersome experience since the computer always sees it as an image rather than as text.

It's being sold by retail chain Computers Unlimited which will be 'making a big splash' when it arrives in two weeks time. The price has been fixed yet. Call 081-200 8282. ■

## 16-bits budget for success

When it comes to the ST, PC and Amiga, budget games have still to fully assert themselves. Still, Digital Integration will this week launch three games for less than a fiver.

Targhan from Simulacra is a violent hack 'n' slash affair. Fast Lane is, hardly surprisingly, about fast cars and Finally On Safari from Infogrames involves taking photographs of big game in Kenya.

All three were full price games 18-months ago but now they are £4.99 under the Action Sixteen label. ■



• 486 power, if you can afford it.

## Power with the price

Elonex has released an extremely powerful ISA-based 486 PC. Priced at £4,245, the 25MHz computer offers 8Mb of memory.

It is suited either as a network server or high-power graphics workstation. The ISA system allows ordinary PC cards to be used alongside the new fast 32-bit devices.

Elonex is on 083 452 4444. ■

## JAMES POND - LICENCE TO KILL



Chris James Pond!

• He's fearless, he's clever, he's cool, friendly and he's a fish with a mission. All sorts of missions in fact, so long as they're ideologically sound, and don't involve murdering innocents.

He, his brief and includes retrieving radioactive canisters and preventing oil slicks from harming endangered species. What fun.

James Pond - Underwater Agent comes from Milestone on the ST and Amiga. His mission is to protect lovely fishy things from nasty pollution. Had to happen sometime - an ecologically friendly shoot-'em-up. At least this comes with 'brilliant graphics, an amazing 12 levels of play and smooth parallax scrolling'. It's out at the end of October for £24.99. ■



• CD-ROM goes portable with a new, battery-powered laptop-compatible drive, which the manufacturer claims to be the world's first.

The two-inch high Grid drive uses standard compact discs it uses any capable of storing up 550Mb of data - equivalent to over 200,000 pages of type written text.

The drive comes as clip-on accessory to the 286-based Gridcase 1530, and is also compatible with the 286-based 1520 series of laptops.

Price for the kit is £1,750. For more information call Grid on 0372 62266. ■

Mad Hacker approached to wipe criminal records

# PRISONERS OFFER CASH TO HACKER

Jailed hacker Nicholas Whitely has allegedly been asked to wipe the criminal records of several fellow prisoners.

While on a four-month sentence for computer crime - he was caught hacking in to university systems - Whitely was approached by top criminals in the prison yard. They offered him large amounts of money to erase their police records following his imminent release from Bristol prison.

Whitely - dubbed the Mad Hacker - was also asked to get hold of information which would have been of use to the villains once on release. It appears that millions of pounds were mentioned although Whitely turned down the offer on the

grounds that "there's no point in having millions of pounds if you're in jail."

Computer crime is not confined to Great Britain of course. Last week 13 suspected hackers were arrested in New York in connection with the illegal downloading of a \$1.2 million C program developed by AT&T.

Several games and other programs were also allegedly stolen from Washington's City University.

The group was said to have met recently at a "2500 Club" run by Eric Corley, editor of a magazine dedicated to hacking.

One of the people arrested is a 14-year-old known as Zed, suspected of leading the Mad hacking crew. Mod is

suspected of hacking into a USAF computer system.

Corley took exception to remarks made by police chief Donald Delaney. Defending the practices of the club and the suspected hackers as innocent, Corley claimed that its purpose was to exchange information on telecommunications technology rather than any illegal activities.

Delaney countered this: "We have confessions from people who say that they received information at these meetings on how to illegally obtain Unix code from remote systems. Zed himself said that he got the number that allowed him to call forward into the university." The case continues. ■

## Kosher data on dodgy motors

A new computer system is being developed to aid customers dipping their hands into the shark-infested waters of the used car trade.

The Hire Purchase Information Company, the trade's watchdog, is to provide extra information from its nationwide database on such details as number of owners, insurance damage claims and correct mileage. Buyers who will pay a £15 fee at an RAC or AA centre for a 'user friendly' printout on their intended purchase.

It's estimated that 7.5 million used cars are sold each year, half of them by the trade. HPI director John Duffell said: "There are some very worrying details for people buying second-hand cars and we hope to provide widespread public access to our information next year."

So it appears that soon a computer will be able to tell you whether the man with the rusty Cortina is an Arthur Daley or not, a decision humans have been evidently been having trouble with for some time. ■



• PC-Kwik: turn up the power.

## Kwik pick

A PC utility pack from the US that can enhance the performance of any PC has been announced by UK firm P&P.

PC-Kwik Power Pak contains five modules that accelerate and make more convenient the use of a PC. The package includes disk cache, print spooler, RAM disk, screen accelerator and keyboard accelerator.

Each of the modules operates independently but the overall efficiency improvement is claimed to be in the order of 400 per cent.

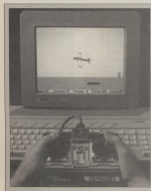
Further information about the £113.95 package on 0706 217744. ■

## PC 3D graphics

Ground-breaking Californian company Autodesk last week announced its latest baby: Autodesk 3D Studio, a completely interactive software tool for creating professional 3D still and animated graphics for 386/486 PCs.

Now, at less than under £2,000 a price tag may put off most punters, but a glance at its specifications is somewhat reassuring. It is able to produce realistic shapes that move with natural motion, and generate images and animations from them quickly and easily - a first for PC software at this level.

For more information call 0483 323322. ■



## Radio control your flight simulation

If you no longer find the on-going drudge of computer flight simulations remotely inspiring then you may just find this of interest.

The logical next development, of course, is a simulation of simulated flying: radio controlled flight but on your own computer console. You don't even miss out on the thrill of those radio controls in your hand, as you just plug it into an Atari ST. Developed by Antrosola, Aerodrop faithfully reproduces all the characteristics of controlled flight, crosswinds and all.

With 22 aircraft to choose from (helicopter or fixed wing) and 131 individual characteristics, plus various 'camera control' modes and the option of a military dimension (bombs, rockets, F-18s etc), the program offers staggering range, and presumably much fun for flying enthusiasts. Available from September, so price is fixed as yet. Contact: 0272 956906. ■

• Control your computer with a radio joystick.

## Mavis on the Beeb

Mindcape's typing tutorial Mavis Beacon Teaches Typing is on its way for the BBC.

The program is already a winner on the PC, ST, Amiga and Archimedes, with an Apple Mac version out this week.

Mavis Beacon should be available later this year at about £30. ■

## Robot scene

A two-day conference on robot applications is to be held at Bridgewater College on October 9th and 10th. Visitors will be able to see the latest in automation. Call 0964 23053. ■

## Laptop PC with a trackball

The GridCase 1590x is the first PC-compatible laptop to incorporate a built-in pointing device, specifically designed to make life easier for those who want to use a more portable Microsoft Windows 3.1.

Grid Systems, the manufacturer, is convinced Windows will be successful in the Fortune 1000 firms market and is trumpeting the product as the first laptop for Windows-based processing.

Mike Maples of Microsoft is inclined to agree, describing the GridCase as "a portable showcase for Microsoft graphical Windows applications."

The system is scheduled for September in the US with no information on UK price or availability as yet. ■

He drooled: "Its 386 SX processor, bright backlit VGA display and built-in pointing device make it ideal to take Excel and Windows on the road."

The system is scheduled for September in the US with no information on UK price or availability as yet. ■

## This disk will self destruct in 10 seconds...

A disk which self-destructs when unauthorised access is attempted has recently been patented.

The disk only works with a tailor-made computer and comes housed in a special case with its own drive motor and read-out head. Built in to the casing is an abrasive wheel which is held away from the

sensitive surface by a mesh of wires and pins.

If a thief attempts to break into the casing in order to read from the disk, the pins are disturbed, the wires break and the wheel crashes onto the disk surface. This would certainly make backing up an interesting business. ☐

Startled rodent gets a shock from the microchips

# BBC MICRO MAKES A COMFY MOUSE HOUSE

There's nothing especially fascinating about the computer mouse – unless it's alive, goes squeak and is petrified of cats.

That's the type of rodent inhabiting Pippa Giles' trusty old Beeth – at least until recently. For the mouse had discovered that hole at the back of Acorn's trusty old stalwart and had crept in and tucked up beside the humming processors and boards.

Said Pippa, of Trowcester: "Due to

the summer holidays I was starting to feel bored so I went to play with my temperamental old Beeth. We've had it for many years and it's responsible for most of the games in our house.

"This time, when I turned it on, instead of being greeted by the usual tones I was greeted with a high pitched sound.

"My father took a spanner to the machine and undid the computer. We couldn't believe it. Inside was a sleepy

mouse. He's been living in the computer, using it as a toilet and storing food there."

But the mouse realised he's never get any peace, and quickly did a runner never to be seen again.

Unfortunately, the machine no longer works and has been sent back for repairs.

Perhaps if Acorn fails to bring it back to life the old machine can be returned for the homeless mouse. ☐

## Laser for less than a grand

The LZR-650 is a sub-£1,000 desktop laser printer, capable of six pages per minute and able to emulate Hewlett Packard LaserJet II, Dribble 30, Epson FX-80, Preprinter and IBM graphics printers.

It produces 300 by 300 dots per inch and has 512K of memory – upgradable to 4Mb in card form – and can be controlled directly from the PC screen.

Available now, it costs £918. For more call GADC on 044282 8681. ☐

## Multimedia agreement

An agreement recently signed by Intel and Panatier is said to "mark the point at which videoconferencing and multimedia computing begin to merge as industries." This was the comment of Intel's Tom Fryer.

The idea is to create windows on the computer screen for interactive multimedia. The deal also combines Panatier's digital video compression techniques with Intel's expertise in computer architecture to create true desktop videoconferencing.

It also extends Intel and IBM's development of Digital Video Interface (DVI) technology into the wider commercial market. ☐



• Busy Tandy has launched yet another laptop – this time it's a low-end IBM's effort weighing in at £799. The 130FD features an NEC V20 processor and 640K of RAM, one 720K floppy drive and an optional 2Mb expanded memory card. Vision comes via an LCD superhigh backlit screen. There are the usual parallel port and RS232 and it will operate for 4.5 hours on rechargeable batteries. It measures a respectable compact 30cm x 210mm x 252mm. ☐

## PC virus help is on the way

With a recent computer industry report claiming that data lost through virus invasion is worth thousands of millions of dollars in the United States alone, the UK release of Norton Anti-Virus, a PC protection program, seems timely.

The Windows-compatible package is said to offer prevention as well as cure by guarding against potential viruses as well as killing existing ones.

The system can be configured to different security levels. A background inter-

ceptor module is included which looks for new viruses.

Publisher Symantec will be releasing a regular virus update to registered users of the software. The price is £149. Call Symantec on 0625 776343.

Another plus for DOS-based machines is the release, in the United States at the moment, of W-Spy. This program remains memory resident and checks all floppies for viruses. It costs \$250. For more call Software Systems on 0101-215 699 5300. ☐

## Grab those PC graphics

TGL Plus is a new package for PC owners who want to manipulate graphic files.

Virtually all recognised image formats can be handled and converted one to another. Once processed

they can be loaded with the original program net being resident on the machine.

Features include dithering and automatic scaling able to shrink graphics to one per cent

original size or expanded up to 32 times. TGL Plus is Windows and DOS compatible. It costs £149 and is available now. For more call Software Forward on 0234 272474. ☐

# FROM The ARCHIVE

## ONE YEAR AGO

### DESK OFFICE

The all-in-one micro-photo-fax was announced by Canon in Japan. The machine, known as the FaxISP incorporated a power PC, fax machine, printer and telephone. Heavy discounting in the land of the rising sun made this desirable machine sell for an unbelievable £1,200.

Despite the creative failure, it still hasn't rolled off the ferry at Dover Eastern Docks.

### FORCE ALE

An enormous PC database capable of storing up to 50,000 high definition images had estate agents the length and breadth of the country salivating. PC Albums from Freehand could use images digitised from video or a scanner and combine picture with salient details of say, every house in Derby.

The basic system came in at £1,250 but those with money to burn (or houses to sell) could spend £15,000 on a full featured system built around optical storage.

### PIRATES AHOY

Pirate copies of Nintendo and PC Engine cartridges started arriving in the UK. The carts, manufactured in Taiwan and Hong Kong were being distributed in the UK and Nintendo was preparing to flex its legal muscles in a bid to curb it.

### VANISHING TRICK

Software importer Mabi Khan claimed to have a product so wonderful that it would revolutionise the whole home leisure industry.

What was it? Khan wouldn't say, but confidently predicted there would be one in every home by mid 1990. We rang him one year later to find out where this wondrous product was... line disconnected.

### TAKING THOUGHT

A computer was installed by the Island Revenue designed to track down those people whose expenditure was greater than their declared income.

The massive supercomputer held a year's worth of the country's tax returns and had access to land registration, bank records and shareholder lists.

12 months later the rich still get richer and the poor still get poorer.

### HOWE SLAMMED

The Department of Trade and Industry slammed Data Registrar Eric Howe for his seltzy seltzy approach to hackers and computer misuse.

Replying, Howe said: 'You've only yourself to blame if a neighbour's cattle get into an unfenced field. The government has taken notice and the Computer Misuse Act is currently building a high voltage electric fence to keep the cattle out.'

### PROBLEMS PROBLEMS

Industry pundits jumped for joy at the rumour that chip giant Intel may have been having problems with its full-featured 80486 PC driver. The rumour proved unfounded as the renamed i486 quietly took its place in some of the more expensive PCs.

## TWO YEARS AGO

### EASTERN INVESTMENT

Japanese electronics group Fujitsu backed Sir Clive Sinclair's bid to produce a cheap waker clip as part of its £5.5 million investment package in the UK.

### ST'S GOING CHEAP(ER)

Distributor SDL piped Atari to the post in the price cut wars with a £299 STFM only weeks before Atari's own £100 cut.

### FAIRED EEL

Konic donated part of its stand at the Earls Court PC show to the National Association of Computer Retailers in an attempt to help clean up the computer industry's image.

The NACR rolled out a nine-part charter aimed at improving the professional approach of dealers and offering fair deals and good quality merchandise to the end user.

COMPUTER EXPRESS SHOPPING EXPRESS

**POWER STATIONS**

Amazing new machines offer computer, fax, phone, touch screens and printer all in one

INCREDIBLE!

Could price really be... up to 100% off?

# CHEAT MODE II THE REVENGE

If you have a CPC, there must be a game which has had you stumped. There has got to be a screen or end-of-level baddie which you just can't beat. You must be getting frustrated with various screens which you never seem able to complete. But fret no more; the answer is here.

## Cheat Mode II

### The Revenge

Compiled by Britain's biggest selling magazine CPC magazine and New Computer Express's sister; Amstrad Action, this 130 page spiral bound book is crammed with pokes, hints, passwords, maps and tips on hundreds of the best CPC games. In total, over 750 essential cheats can be yours for only £9.99, or buy the book plus tapes (to save you time in typing in the listings) for only £11.99 use the coupon below or ring our hotline number on 0458 74011

**There's no question about it.  
YOU NEED IT.**

**Yes!** please send me the following right away

please quote number required

- ☐ copies of the Cheat Mode II book at £9.99  
☐ copies of the Cheat Mode II tapes at £11.99

Remember to add £1.45 to the total cost for postage and packaging.

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Address

Post Code

Telephone number

Total payment

Method of payment

☐ Cheque / postal order please make cheques payable to Future Publishing Ltd

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# YOUR ONE STOP SHOP

MORE SOFTWARE THAN YOU CAN HANDLE!  
MORE HARDWARE THAN YOU CAN USE!

# Software

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# CPC

## TIME WAITS FOR NO MAN

Well I'm dunned if these deadlines didn't catch me out again. There I was, determined to be on the ball and bring you a special exclusive console story in this bre column as soon as the story broke, and blow me, those lads on the Express news pages beat me to it.

You see the whole problem is that I have to write this column a couple of weeks in advance, and these crazy news-bounds don't always tell me what's going in that week OK, so I don't always ask... anyway, the upshot is that years truly has been well and truly spoiled. Still, better late than never.

What great news it is, though! Anyone expecting to see the CPC started up with just a few bells and whistles must have been well and truly gobsmacked when they saw the new Plus machines. And what about the console - cyber or what?

Actually, I've known all about the new machines for weeks (based board) - I just couldn't tell you. Amstrad had the whole story embargoed until the end of August, even though it had flown a dozen UK journos over to Paris in June for a sneak preview. You can imagine what it was like sitting on all that news and not being able to breathe a word of it.

## LOOKING TO THE FUTURE

Anyway, by now you've read the news story and the review (a couple of issues back), what are the implications for existing owners?

Well, the best news of all has to be that all those CPCs already out there have not been rendered obsolete. Far from it. The only advantage offered by the new machines is the ability to run console games. Although these will feature better sound and graphics than traditional CPC fodder, the old machine is still a pretty far games micro even now. And even publishers writing console games look likely to produce versions for the old hardware at the same time. I say 'old' hardware, but the fact that tape or disk software produced for the new Pluses effectively still uses that hardware (it can't access the new dedicated chip - only cartridge software can) means that not only will old software work on the new machines, but tape/disk software written for the new Pluses should work

on existing CPCs too.

And Amstrad's release has got to be good for CPC owners if only because the renewed interest in the format should give rise to a fresh burst of software releases - publishers will be keen to attract a whole new batch of users, after all.

One of Amstrad's smartest moves of all, though, is its decision to produce a range of machines and not just a console. And by incorporating a cartridge port into the Plus machines it's generated a perfect upgrade path for console buyers who decide they want to get properly into computing instead of simply playing games all day.

All in all, Amstrad has shown itself to be extremely serious about the 8-bit market in general and the CPC format in particular. After months - years, even - of speculation about the imminent demise of the CPC, the machine has received the biggest push it could hope for. And those sceptics who thought the CPC was dead - well, you aren't seen again yet!

## BURNIN' RUBBER

This brings me neatly to *Burnin' Rubber*, the Ocean driving game bundled free with both the G4000 console and the 464 and 6128 Plus. I first played this game in Paris at the launch, but the version on show there had no collision detection and unlimited time, so it was difficult to form a fair opinion. Now, though, we've had a console in the Amstrad Action offices for a couple of weeks (not yet hearts out) and I've been able to play it properly.

Imagine a cross between *MEC Le Mans* and *Chase HQ* and you've got *Burnin' Rubber*. It's a game loosely based on the 24hrs Le Mans sports car race, and has you driving your 2000mph monster over a twisting course complete with (very hard) ad hoardings, hills, dips, other cars and even tunnels. You have a time limit to complete each stage, and as the race progresses this time limit gets tighter and tighter. Ultimately, you'll be relying on the time buffer gained on earlier, easier stages just to keep going.

Nothing very earth-shattering in that, and, indeed, at first it's hard to spot any huge technical advances over the standard CPC. True, the main sprite is very detailed, and the whole thing is

extremely fast and smooth... and then you crash. And that crash sequence really shows up the console's power as your car cartwheels end-over-end down the track and finally spins to a halt. You see your car from a variety of different angles as you crash - always perfectly detailed - and the scrolling slows down not just while it's happening, but in where the sprite hardware really shows its mettle.

The second - and even more spectacular - surprise dawns on you (almost literally) as you carry on racing. Is it your imagination, or is it sky getting darker, the ground redder? No, it's not your imagination. The new hardware has a huge palette of 4,096 colours instead of the CPC's 27, and *Burnin' Rubber*'s programmers have made full use of them to provide a subtle and often breathtaking series of transitions from broad daylight, through dusk, into full night. All helped, of course, by the increase in maximum on-screen colours from 16 to 32. Until I saw it, I would never have imagined simply increasing the palette could have made such a difference.

And the sound? The improvements are subtle rather than startling, and masked by the fact that the new monitors have much better speakers and that the programmers have done such a good job in the first place. Your car's engine roars convincingly and your tyres squeal loudly as you overcook the corners - you even get a regular, rhythmic 'bust' as you bounce down the track in the crash sequence.

As a game, *Burnin' Rubber* is playful in the extreme. The plot is as odd as film as it could be, but the collision detection, sprite response and judging of time limits all make up for that to provide the best racing game the CPC has yet seen.

P.S. If you can make it to the night, you're getting pretty good.

## SPECTRAVIDEO STICKS IT TO EM

This stuff about the new Amstrads is threatening to squeeze everything else out this week. There's just space, however, for a mention of Spectravideo's latest joystick bonanza.

No, there's no new button-sprouting, arm-aching, wallet-busting wonder-stick this week. Instead, Spectravideo is cutting the prices on its entire Quackjoy range.

Typical reductions include £1 off the Quackjoy Junior, down from £5.95 to £4.95, and £3 off the Quackjoy N3 Pro for the Nintendo, down from £22.95 to £19.95.

## OUT WITH A BANG

Meanwhile, for completion fans everywhere, Denmark is releasing TNT, an "explosive" collection of five Tengen arcade conversions. These consist of *Hard Drive*, *Toobies*, *APB*, *Dragon Spirit* and *Aybetts*, all top releases from last year.

TNT should be available on the CPC in the next few weeks. The only bad news is the price - £14.99 on cassette, £24.99 on disk.

Rod Lawton

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PCW	10
MSX	10
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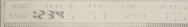
\*ST angel on a Harley.

ST	12
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\*Plotting: Amiga game of the week.

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Burnin' Rubber: Terrific speed, playability and sprite handling from the first console game.



TNT should be available on the CPC in the next few weeks. The only bad news is the price - £14.99 on cassette, £24.99 on disk.



# SPECTRUM

## PLUS 3 USERS GROUP

Plus 3 owners are always whinging on and on about the lack of specific support for their machine in terms of software and magazine coverage. This can be insane, so cross over the street if you see one coming and don't start talking to them as parties and whatver you do. They've got a point however, which is why an organisation of like minded people was set up a year ago to give the kind of selective support to the Plus 3 that its legions of users deserved.

"The Plus 3 Users Group" is the sharp name of this sterling body and thanks to Express you can join at a discounted rate. Rather than the £11 it costs everyone else to subscribe to the Plus 3UG for a year, readers of this column can save £1.50 and sign up for the specially reduced sum of £9.50. Membership of Plus 3UG gives you access to a helpline conducted by post, telephone and modem; an absolutely huge, although not completely free, PD library; and 12 issues of Contact - the A5 (half the size of Express) 30-inch page club mag.

It's a good deal and the group is expanding even as we speak. Join up at The Plus 3 Users' Group, Gamers Design, 57 Lowers Walk, Daresbury, Beds, LU8 4BG.

## GHOST

Here's the second thrilling instalment of Ghost. A program which effectively bypasses accessibility problems on the Plus 2A and Plus 3 by transforming them into a 486. Spectry, mines the rubber keys and daisy power lead, of course. If you missed the first part or can't summon up the energy needed to tape the whole blooming thing out send

an SAE and tape for a copy for SAE and 10p for a printed version to the author: M Harris, 1 Salfers Lane, Farnham, Kent ME 13 9TD. The same bike will also scan supermarkets and village fetes for a reasonable fee.

1095S DATA 237, 176, 17, 125, 27  
1090 DATA 14, 14, 237, 176, 17  
1065 DATA 244, 27, 14, 237  
1070 DATA 176, 17, 70, 36, 14  
1075 DATA 3, 237, 176, 17, 64  
1080 DATA 21, 14, 21, 237, 176  
1085 DATA 17, 142, 9, 14, 29  
1090 DATA 237, 176, 13, 110, 56  
1095 DATA 17, 111, 14, 54, 58  
1100 DATA 1, 145, 4, 237, 176  
1105 DATA 62, 255, 58, 79, 5  
1110 DATA 199, 62, 243, 50, 0  
1115 DATA 0, 58, 0, 64, 63  
1120 DATA 50, 0, 64, 187, 213  
1125 DATA 205, 191, 2, 6, 0  
1130 DATA 214, 165, 48, 9, 178  
1135 DATA 17, 54, 21, 253, 203  
1140 DATA 10, 126, 223, 294, 13  
1145 DATA 205, 142, 2, 83, 105  
1150 DATA 110, 98, 108, 97, 106  
1155 DATA 114, 32, 82, 100, 115  
1160 DATA 101, 97, 114, 99, 104

The third and final part of Ghost appears in Express next week. Order your copy now or remain incompatible for ever.

Here's the regular plan for correspondence section. Please send all Spectrum hints, jokes, cheats, fanclubs, software, news and comment to: Robin Alway, New Computer Express, 30 Moorcroft Street, Rotham, BN26 2BA.

If you want a personal reply throw an SAE in and be prepared to wait a few months.

Robin Alway



# SAM COUPE

## COMPUTER FAIR

The next All Formats Computer Fair sounds like an event Coupe owners should attend. It takes place in the plush surrounds of the Royal Horticultural Halls in London on Saturday September 1st, 10 am - 5 pm.

There will be a SAM village packed with Coupe related stalls including SAM Computers - Bruce Gordon and Alan Miles' new company. Admission price is a not too bad £11.00.

You may remember, although I won't blame you if you don't, the printing tip which let you load in a FLASH typeface. Well here's a much simpler way of doing the same thing. SAVE a font to disk or tape from FLASH! Read the SAM Type Load "Filename" CODE D0680.1096.

When it has finished loading, the new text will make its appearance. Thanks to Zenith Graphics, who put out a disk crammed with SAM software every four months, for supplying it.

Fill print a full review of their wares when I get sent a copy.

## NEW ASSEMBLER

There's now another assembler for the SAM. SC Assembler has been written by the author of some respected Spectry utilities, Steve Nattling, and comes on disk only. The accompanying bumper claims it's the best Coupe assembler yet, and it certainly looks impressive with a word processor like display of 62 columns and a gauge down the side of the screen indicating the amount of memory used.

You can configure ink, paper etc before you start and, although I'm a bit thick when it comes to technical things, the editor is apparently easy to use, with function keys employed throughout and worded error messages.

Other features that will impress assembler users are a source compressor to save memory and the fact that SAM ROM isn't used, thus ensuring complete compatibility.

SC Assembler costs £10 on disk only, from: Steve's Software, 7 Narrows Close, Histon, Cambridge CB4 4DX.

Robin Alway



# PCW

## FLIGHT OF FANCY

I'm often accused of being frightened of flying. This is nonsense. It's the crashing I'm afraid of. I once flew on a plane in China. The stewardess looked nervous in the trolley. In trying to rescue her, the co-pilot got his watch and therefore himself caught fast in the lock. In trying to rescue him, the pilot locked himself out of the cabin. Luckily they got back in before the automatic pilot had a chance to lead us vertically up a skyscraper in Hong Kong harbour.

Anyway, for those who want to try their hand at piloting a fighter plane the excellent flight sim, F16 Combat Pilot, will be available for the PCW from Digital Integration from mid September, price £24.99. Great for teaching you how to fly a fighter plane but maybe not so good for showing you how to get a stewardess out of a plane. Phone 0276 684959 for details.

## CAN OF RIBBON WORMS

Life is short. So are Indian businessmen. And carbon ribbons. 9512 owners will know that their carbon ribbon cassettes wear out all too quickly. Now Aladdin has brought out a kit to let you replace the carbon film and spools in your existing cassette. At £10.99 it claims to bring back the cost of replacing a ribbon to £2 a throw instead of the £5 or so you pay in shops. Aladdin is on 08907 50965.

## PIPS ARE GOING... MORE PIP OPTIONS...

IQ1 Object file transfer for transferring machine code files. Ignoring control-Z's which would normally be an end of file marker.

IQ4 Page, Inserts end of page markers every x lines. If so a is specified will take x to be 60. Normally used with IQ1 to take out page ends already in a file and insert them to the desired figure.

IQ6 Q2 Set. Stops copying the file when the specified string @ is reached. PP M-u-k-i, "Q1FRED" Q2 for example will stop copying when the word FRED is reached. Only seems to work with capital letters.

IQ8 Reads system files which PP normally ignores.

IQ8 Q2 Starts copying when the string @ is reached. Often used with Q1 to give start and end points.

## LOCO TIP

Keep details of your diary, useful phone numbers etc. in a file called TED-PLATE.SDT on your startup disk. When you run up Locoscript it will automatically be copied to drive M, ensuring you can look up the details whatever else you're doing.

If you make changes, remember to copy it from M back to the startup disk before switching off.

## BASIC TIP

The command OUT 248,0 blanks the screen. OUT 248,7 unblanks it.

Rob Ansley



# MSX

## POOR RESPONSE

Reading this month's Network magazine, the alternative magazine for the MSX user. I see that the response to the MSX programming competition has been very poor so far. This is in spite of the fact that there is a prize of £100 to the person who sends in the best entry. It still isn't too late to send an entry to Network, so if you have written anything for the MSX, and think that your effort is worth seeing, send it to Network, 395 Park Lane, Marghat, Merseyside L31 1HQ. Entries should be sent on 3.5 inch disk if possible and, of course, don't forget that good documentation also helps. The only thing that Network asks of you is permission to add the competition entry to its public domain library, which is a small price to pay if you happen to win the hundred quid.

## KLAX

I have now had a full week playing Teenage/Tomark's latest release for the MSX, the highly addictive game Klax. If you believe all you read on the package that Klax is supplied in, it has got to be the best thing since sliced bread. For example: "The latest crash from California"; "99 Wives of Steve Jurek"; and "The fastest slotted coin-operated" are just a couple of quotes from the blurb on the box, so at least Teenage believes that it has a winner on its hands. The game is supplied on tape for the MSX user, and is priced at 29.99. It is a pity that a disk version is not available for the MSX user, as there are a good number of MSXers with 3.5-inch disks, particularly in Holland and Germany. We seem to be the only format without a disk version. Is the game as good as we have been led to believe?

How do you describe a game like Klax? How about a sort of 30 Tetris with added features (what do you mean you haven't seen Tetris, everyone must know Tetris). All right, for those who haven't, the object of both games is to position falling objects, and stack them in certain positions to score points. In Klax the objects are coloured tiles, and you have to catch them as they tumble towards you down a five lane table. Flip the Tiles into bins to make coloured stacks, and try to make rows of three or diagonals.

It all sounds so easy, but when you have half a dozen tiles all cascading down the table at the same time, things can get a little hairy. All in all Klax is a very good game, and if you enjoyed Tetris then this game is an essential purchase. This game book top marks on most formats, and the MSX version loses nothing when compared to the other versions.

## READING MATTER

Good news for MSX users in the Reading area, a new computer store has opened, and they are stocking MSX software. Although they have only a few titles in stock at present they have assured me that, if the title you require is available, they will attempt to get a copy for you. The Company is called Computer Vision, 31a School Rd, Tisbury, Reading, Berks, TD 23 4A 52416. They also supply mail order, so here is another supplier to add to your list.

Keith Neal



## C64

### ALL TAPED UP

SOME time ago now, dear reader (about four months ago) was a little more precise. I mentioned a chap called Jack Lockberry. He is the figure behind a software company known as River Software, and he's been producing decent adventure games for the C64 for many a month, so he should know what he's doing by now. When I mentioned him last, he had adventure games available, and these were split over three disks, each disk costing £4.50. Well I can tell you they are now available on tape (they weren't for a while). One of the titles has gone missing, but there are now eight adventures on four tapes, each tape costing £2.50 including postage – a ridiculously low price. I can thoroughly recommend these programs, being a great fan of the traditional way of doing things. So if you're a tape owning C64er who is feeling stranded of adventure, the address to write to is: River Software, 44 Hyde Place, Aylesham, Canterbury, Kent CT3 3AL.

### IT'S SHOWTIME

No doubt plenty of you will be going to the Computer Entertainment Show at Earls Court, London, on September 15/16. There will be a good Commodore presence, or so my spies tell me, and as ever with shows such as this it could be a good chance to pick up a few bargains. It's just a pity that the show is at

London. I know it's handy for Londoners, but what about the rest of us? When's Commodore's next UK tour?

### LET'S SPOKE AGAIN

A few more lists and tips for you, to keep you coming back for more in those games that continue to defeat us all. On Bombjack, you can POKE \$112, 0-\$Y5 3101. On Ghostbusters, you can POKE 38454, 96: \$Y5 24576. On the canis named KQ, you can POKE 25117, 254: \$Y5 24588. And finally for this week, on our old friend Attack Of The Mutant Camels, you can POKE 7019, 0: \$Y5 4096.

### OLD BUT NOT FORGOTTEN

Ever discover something months or even years after you should have discovered it? Something that would have saved you time and lots of effort spent learning things the hard way when you could have learnt them the easy way? I made such a discovery recently. So if you're one of those people about to embark on the tricky path of learning machine code, then I can recommend a book by that programming legend, Jim Butcherfield. It's published by Brady books, is about three years old (but being by Jim is still very relevant), indeed, it is called Machine Language For The Commodore 64, 128 and other Commodore Computers. Note however that because of the book's age it does not cover the Amiga. Nevertheless, anyone with a 64 who is keen to study machine code is well advised to track it down.

Pete Gerrard

## QL

### PDQL

Quanta, the QL users group, has received several complaints over the past few months about PDQL, the Birmingham-based QL software and hardware supplier. The main grumble has been about non-delivery of goods ordered, although credit card accounts have been debited and cheques cashed, and extensive difficulty in getting replies. While this has been happening I understand that the Birmingham Trading Standards people have become involved, over PDQL's 7 compiler, which has been advertised for over a year, but has not been shipped to a single customer, as far as I know.

PDQL has also been in trouble with some of its suppliers, notably Marac Systems and ITC, over delays in payment for goods supplied.

By the way, the safest way to order items from a mail-order supplier is with a credit card, provided the value is over £100.

If the supplier doesn't come up with the goods, you can claim off the credit card company saving a lot of messing about. Where smaller sums of money are involved it might be a good idea to ask for the goods to be sent COD if you aren't too sure about the supplier.

### A GOOD DESIGN

In my opinion the QL, although it is over

six years old, is still one of the best looking computers around. This is hardly surprising, as a top designer was responsible for putting together the external design – the case and keyboard.

This emphasis on good design is quite unique in my experience for what is, essentially, a low cost machine intended for mass production.

Moreover, the case of the QL is constructed from ABS – a high-quality and fairly expensive plastic.

### ANYONE FOR TENNIS

Prior, well known for the Organizer and a couple of classy new laptops, probably won't think me for mentioning this; it started off developing games for the Spectrum.

Even after it moved upmarket and sold Sinclair the suite of programs that was bundled with the QL, they maintained an interest in the games market, and released a couple of games for the QL – Chess and Tennis.

Prior Chess was the first chess game to offer the option of a three dimensional representation of the board and pieces and plays quite a good, aggressive game.

Even if you aren't particularly interested in chess, it's worth getting hold of the game just to impress your friends with the capability of your system.

The Prior Tennis game is an equally neat piece of programming, and well worth buying, if you can find it on sale.

John Torrance

## BBC

### WW PLUS QUESTION

I received a call from the other day from a Wordwise Plus (WW+) user who wanted to know how to set it up with his printer. It is always difficult to answer queries like that because of their broad nature, but I took it to mean that he wanted to make use of more than just the simple bold and italic etc available from the function keys of WW+. This however damps you into a never ending cycle of deciphering the escape codes given in your printer's manual, incorporating them into your document, going back to the manual, and so on. For a now user this is plainly impossible, so what can be done? Three solutions present themselves:

One: Do nothing, after all life is short.

Two: Buy a good book such as Wordwise Plus: A Users Guide, by Bruce Smith. Most books on WW+ tackle the problem mentioned, some more elegantly than others.

Three: Get hold of a printer driver HCM, such as Hyperdriver, which can help you out of the jungle in various ways.

### KLAX

Klax, from Domark, is yet another variation on the Tetris theme of lining up coloured blocks to score points. Klax is a very addictive game with really good gameplay. The graphics are coarse on the Beeb in low res mode 4.

Monochrome mode 0 graphics would have been better.

Andrew Brown

## ARCHIMEDES

### IT'S SHOWTIME, FOLKS!

Bedsit down to the Horizontal Hall new London's Victoria Station. That's this year's venue for the BBC Acorn User show – now the only big dedicated Acorn show – between 7 and 9 September. The Horizontal Hall used to be the regular haunt for the lamented Micro User-busters, but those of you with better memories may remember the built-in non-appealing rule as Indiana Jones and the Lost Cruise – it starred as Benin Railway Station.

Last year saw the A3000 debuting. There won't be any new 'cheap' Archimedes this year, and there might not even be a new 'expensive' one either. Acorn could take the opportunity to show the inevitable non-Unix version of the new R260 ARM32 line machine, which would simply be an ARM32 RISC05 machine, with 4 to 16MB of fast memory and a big hard disk. It's likely to cost about three and a half grand, and for less you can take a current Axi 410, add extra RAM, an Alpha One ARM32, Arkonide RAM memory expansion and season with a hand disk to taste. It won't be quite as fast, but it will be close.

The only real advantage of the R260 is its plug-in processor board, which should make it possible to add an ARM32 next year, or an ARM32 board fitted with the FPR floating point accelerator chip. Then again, I bet someone will do something similar for that 410...

What will be new at the show? Lots of Acorn software. Bedside's Dyalux, Clares' Tempus, Impression release

two and Impression Junior from Computer Concepts will be battling it out for the DTP market. From Minerva, Flexfile, which could easily have had the Multi-store Junior moniker, and DeskTop Office – but more of that next week.

Clares, purveyor of graphics software to the gentry, will be showing Flexphoto, a music composition package that's more sophisticated than the Invader Maestro. It's MSX-compatible, but not aimed at the pre-mass market like Pandora's Inspiration.

Also the Interceptor 2 flight sim. More scenery to train your cameras at, a more realistic aircraft to fly, and missiles!

### SCHEMA

Unexpected news from Clares: Schema. This is, or was, Acorn's Excel spreadsheet, in the works for 'simply easy'. But application software has become something of a hot potato in Cambridge, and Schema has been passed to Clares to flesh off together with the actual programs CRM, who were 'something in the QL world' at one time. All the rumors said 'Schema is an airline surveyor; see it, and the rumors are wrong. Now a three-legged chicken perhaps...

It has a lot going for it, it's a spreadsheet with the traditional structure of rows and columns. The normal spreadsheeting functions are good to excellent – maths, time and finance are well covered – and business graphs and charts are built-in. Financial functions fol-

low UK accounting conventions, tott the US systems used in PC and Mac packages.

It was Microsoft's Excel that showed how a WIMP spreadsheet should work, and Schema aims at that level. It doesn't quite reach it, but in one respect it's well ahead. There is a scripting language that makes the spreadsheet programmable.

There are no rough edges, but it's a good dedicated spreadsheet, very customizable, and worthy competition for Pipedream. Is one megabyte? Fast? Don't know, but when I see the alpha version, I'll report.

### SCREEN GRABBING

On the Arc you can grab the screen with Paint, using the Get screen area menu option. But a 1MB Arc may not have enough memory to run Paint as well as whatever you're trying to grab a picture of. So, set up a new folder called ScreenGrab. Inside that, put an Obey file called Run. Edit has a special Create menu option for writing new Obey files. All that says is:

ScreenSave >Obey[Ctrl]Screen.  
Whenever you want to save a desktop screen, you can use ScreenGrab to put the ScreenGrab icon on the icon bar. Click on it three to save the screen. ScreenGrab is only 32k so there should always be enough memory.

The screen is saved in a file called Screen in the ScreenGrab folder – shift-click on the icon to get to it. But the

Ken Courman



### CALAMUS SPLITS!

The world's biggest Atari show took place in Germany last weekend (see next week's Express for a full report), a country where there are over 600,000 STs – twice as many as Britain – and where the Mega is considered practically the base machine. Mention a 520ST with a single-sided drive in Düsseldorf and you'll have them removing their brows and saying, "Ein... was ist das, bitte?" (That's none of your business – eh?)

Well, the ST has come much closer there to fulfilling its potential as a 'serious' machine, for what the Americans like to call 'productivity' uses. It runs factories (yes, really), it has a strong presence in schools, colleges and universities, and it is not uncommon to find it used as a DTP option.

In this country, by contrast, desktop publishing on the ST is just beginning to take off. Now the latest development from Sigma Publishing could just help it to grow that bit faster.

For Sigma has announced what is effectively the splitting of Calamus. The current version is to take a significant price cut of almost £200, down to £262.50, to make room for Calamus SL, the colour version released at the Atari Messe.

There is of course another way of looking at this. For the new version, which enables DTP users to produce their own four colour separation files for outputting to a laserbeam machine and thereby save on expensive repro costs, is in fact going to cost something not adjacent to £500 – a good deal more than the previous version before the price cut! So the announcement can be interpreted as either a price cut for Calamus – or a price real

Confused? That's not at all. Because the more obscure among you may already be aware of a company called Network News Services, which has for some time been

underwriting Sigma by a good £100 plus ad selling Calamus for £299, and throwing in a set of TOS 1.4 ROMs for free. And when you discover that you can buy it for £170 in the States, you begin to wonder just what the hell is going on.

In fact, threats of legal action are being muttered about by both parties, with NNS quoting from the Treaty of Rome, which forbids unfair restrictive practices, and Sigma alleging grey importing (not, as far as I'm aware, a criminal offence).

Because of Sigma's links with the German company that holds the licence to Calamus it may take a while for NNS to get supplies of Calamus SL. Certainly it has not officially announced it. But you'd still be in luck in mind the various deals an offer from the two companies should you be about to invest in Calamus. NNS is on 0375 859103, while Sigma is on 0252 341600. Compare, as usual, on-line papers up, and contrast.

### TOMORROW'S WORLD

The Atari Mega has proved short on starting new developments, such as the launch of the controversial STE last year, but at least it gave visitors a chance to see the TT (yet again).

This, of course, is Atari's much lauded (and much announced) 42,000 'super' ST, which if nothing else offers a glimpse into the future of the current machines. What the TT owner does today, you'll be doing tomorrow.

The startling thing, as readers of Express will already know, is that even before launch the TT has recently shot up in speed, from a very respectable but hardly earthshattering 16MHz up to a terrifically fast 32MHz. That means that ST software will run on it some five to seven times faster. And with optimisation, that should increase to some 10 times quicker!

The rest of its specifications make mouth-watering reading for those of us who intend to be sticking with Atari for some years, too. Stated by for a 32MHz machine with 2MB of memory, 40MB hard drive and super-high resolution monitor.

It's impossible to put a date on it, of course, but I reckon that by the time of the next World Cup, when you're looking to replace your current model, that's the kind of specification you could be looking at. And it sure as hell won't cost as much as two grand either.

### SIGNA OPENS UP

More news from Sigma (see the Calamus item at the beginning of this column), which has announced the opening of its first branch office, in the centre of Sheffield.

This is good news indeed

for those of you lucky enough to reside in the beautiful north of England (also patronising and get on with it – ed), for I'm forever opening letters that complain about the southern bias of ST shows and supplies.

Anyway, Sigma boss Mike Dale tells me that Sigma Northern is actually two sales on the 4th floor of a converted mill. I anticipate the office will be completed and fully open by the middle of September. He predicts, "at which time we'll be having open days and demonstrating our complete product range, including Signum, Script, scanners, OCR, Calamus..." At this point I had to interrupt, for fear Mike was about to read his whole catalogue out to me.

Anyway, Sigma Northern is at Addenwells Mill, Nursery Street in Sheffield, and you can see it if you can wangle an opening invite by calling 0742 823155 or faxing a begging letter on 0742 823215. Best of luck to 'em, I say!

### CUBASE 2 HITS TOWN

As mentioned in this column a week or two ago, the latest upgrade of Cubase should now be available from your friendly local music shop.

In fact Cubase is busting out so much with version 2 that it now comes on two disks. Though Ensoniq is keen to stress that you can still use it with just a single disk drive, it incorporates a number of new features, the most notable being, I'd guess, full WYSIWYG score printing and an interactive Phrase Synthesiser, a wholly new facility that enables the musician to move versions from existing music.

Another neat feature is the option to 'throw out' modules to save space; you can discard the Score Editor, for example, if you're working with a 1040ST or Mega 1, leaving more space in memory for recordings.

Cubase v2, which also includes a full bag of fees to L5, is free to all official Cubase users, or new for £550 (quid) from Ensoniq Soundworks (call 0993 898484).

### CALLING FLOPPYSHOP

Steve Delaney of Floppyshop, the delicious Aberdeen-based PC library and lot of ST wisdom, has asked me to point out that all callers should ring on 0224 312795, and not on the old number some people are still using.

By the way, the helpline is now available between 9am and 5pm Monday to Friday, effectively a doubling of the old hours.

### OUTLINER FOR ST

A Mr Neil Byrnoth of Bath has written, complaining, And for why, you ask? Because he can't get his hands on an outline program for his ST.

"In case you've never been



If there's one type of game which really makes the adrenalin flow, it's the racing simulator. Last Christmas the games charts were dominated by car games from every respectable software publisher out there. In recent months we've seen a decline in the number of racing games but this week it's the turn of Mindscape to cash in on this addictive formula.

Harley Davidson is a motorcycle simulator in the same vein as RIV Rends and Super Hang On. The objective is to race from the East Coast to Sturgis in a mere 10 days. When the game starts you have a battered Harley Davidson and you're dressed in typical motorist gear. The idea is to build up cash so that you can improve your bike and purchase new riding gear. To help you, you're given a meagre amount of cash at the start and you can play various sub games to increase your wealth.

The events aimed at increasing your financial reserves include typical biker stunts. For example, there's the slow ride contest where you need to move your Harley as slowly as possible without falling off and there's the Nerwie Run – an ultra weird contest, here, you're given a ride on a pole and the stands on the back of the bike bring Frankfurters which hang from strings along the road while you steer around underneath!

During the race you move through several towns and to buy new equipment you simply visit the bike shop where you can point and click on the item you wish to buy. The various shops enable you to buy custom engines, jackets, boots and other extras essential to making your bike the coolest machine around.

In between times you need to dodge the typical junk in the road and try to go as fast as possible. If you break the speed limit it'll flash the cops and you'll get a warning. If you try and run too fast then you usually end up paying a fine but pull in and they often let you go without incident.

This is undoubtedly one of the better bike games around. The control of the bike is realistic with clutch controls, shifts and cranks. The road moves smoothly and the bike is easy to move – there's even a realistic engine noise. There's nothing particularly original about the challenges but the clever sub-games make it an absorbing and exciting thrill. It weighs in at a hefty £30 but if you get money to three around, throw it in this direction – you won't regret it.

Mark Higham

unfortunate enough to be obliged to sit in front of a PC contemplative." Neil writes,

"Outline is perhaps one of the few good pieces of software never to appear on MS-DOS. It's a text editor – more properly an ideas processor – that enables you to jot down ideas, edit them, move them around and 'Yes!' them."

"So you have your flashes of inspiration and jot down every idea as a separate line. Then you start organising and expanding. It doesn't sound much, but believe me it's brilliant. But I can't find such a program for the ST. Why not?"

Well, Neil, I have suffered the PC controllable fate, and Outline is, I admit, brilliant. The good news is that there is such a piece of software for the ST. It's called Folded, and

it's actually intended as a programming editor.

Best of all, it's public domain – so you can try it out, and if it's not up to scratch, then you've hardly lost out at all. It's available from Floppyshop: call Steve Delaney on 0224 312795.

Still, does anyone else know of any other such programs? They really do help the creative process.

The only other program that's remotely like what Neil describes is the Scribble section in the utterly unspeakably brilliant Harlequin, which may cost £50 but is worth every single penny.

It's a superb suite of programs and utilities, and it's available from H&S on 0252 713681.

Steve Carey

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# AMIGA

## CONSOLE DODO

No one was as impressed as myself when Commodore announced its CDTV system. With built-in CD player and full Amiga compatibility, the CDTV was not only good news for the Amiga, but for the computer scene as a whole. Now, after many months of uncharacteristic good decision making, Commodore seems to have gone back to the old days of bashing things up with the release of its latest baby – the Commodore Games Console.

Based on the aged C64 (which, admittedly, has become one of the most successful computers of all time), the console uses the usually aged cartridges which Commodore tried to introduce when the C64 was originally launched. OK, the C64 still sells well, but what myself and many other people can't understand is why Commodore didn't produce a cheap console based around the Amiga. OK, this could have seriously hurt the CDTV before it was even launched, but with machines such as the Neo-Geo, PC Engine and Megadrive capturing most of the console action, Commodore's aged 8-bit is going to be up against some stiff competition.

Then again, Amrad Ltd has decided to plunge into the console market with a machine which is based around ancient 8-bit technology. The difference here is that Amrad knows how to market such things – as we all know, marketing has never been a factor in Commodore's favour.

## MUSIC UPDATE

When Microlissians launched its acclaimed Music-X MIDI sequencing system, Amiga musicians were promised a whole host of add-on modules to further enhance an already impressive product. Indeed, Microlissians went to great

lengths to stress that Music-X was far more than a sequencer, preferring instead to call it a "complete music workstation on a disk".

Among these items promised were a whole range of patch editors for use with the Music-X Librarian page. Microlissians promised that several were being developed including editors for the Kong MT, but still having to program my M3 from the front panel and the Roland D10/SD10/CD20. OK, there are plenty of patch editors already available from other companies (such as Dr.T) but what made the promised Music-X editors so special was their price – a mere £10 (Dr.T editors will set you back 10 times that amount). But as we all now know, none of the promised add-ons ever materialised.

According to Microlissians, the patch editors are still coming. If you've upgraded your Music-X program disk to version 1.1, there are a couple of extra patch editors included on the new program disk, although what they are is still unclear. Microlissians is now hard at work on Music-X version 2, which will include many enhancements over the original including full score editing (about bloomin' time), drum editing and perhaps even algorithmic composition. The new program should be available later this year for £300. For more info, give Microlissians a bell on 0480 496497.

On the subject of music software, look out for a feature in a coming issue of Express that will put the best of the Amiga budget sequencers in a head to head comparison to find the best sequencer for your money. Stay tuned for that one!

## MOUSE MATTERS

Although the Amiga Workbench is predominantly mouse based, it is still possible to use your Amiga if your mouse suddenly dies on you (which is all too common). The answer lies in those little wonders, the keyboard shortcuts. Here's a list of those available –

Right Amiga + X – Clears the currently active string gadget (such as the icon name option on the Workbench).

Right Amiga + Right Alt – Same as pressing the left mouse button.

Right Amiga + Right Alt + Cursor keys – Moves mouse pointer.

Left Amiga + Left Alt – Same as pressing the right mouse button.

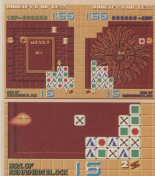
Left Amiga + Left Alt + Cursor – Drags selected icon or window around the screen.

Left Amiga + V – Selects the RETRY gadget on a system requester (even if the mouse pointer is not over it).

Left Amiga + B – Same as above, but selects CANCEL gadget.

## PLOTTING

Ocean • £19.99



After saying in last week's review of Extase that puzzle games are the next thing, what should appear for the Amiga this week but a review of yet another puzzle game.

However this time the style of the game is quite different. Instead of creating a strange and surreal atmosphere (like Extase), Ocean has opted for the cute-and-corny feel. You play a small brown blob known as an 'Amish', who is trapped in a strange tent-like building. Each room contains a square of blocks in one corner, displaying various coloured symbols. You must destroy a preset number of these tiles by throwing a similar block into the pile, but you can only hit and destroy tiles which bear the same symbol as the tile you are throwing.

If it is not possible for you to hit a tile like the one in your possession, then a mine is chaffed up and you lose a life – lose all your lives and you are told that you have no moves left to take. However, there are occasional 'Wild' squares which appear when they appear can give you lives a boost.

The gameplay of Plotting is simple enough and the graphics and sound are of the pretty straightforward, 'cutey' type. Having said that, Plotting does have a sort of charm that makes it great fun to play. The early levels put you into a false sense of security, so that you think "Oh, this is dead easy" only to find that somewhere around just level six that you're managed to cut off all the green squares where that's bound to be your next target.

Getting through the levels is by no means an easy task, but even if you do the stars signifying up his sleeve there is the added bonus of a level editor, which allows you to create devices puzzles of your own, so that you can watch friends and relatives struggle.

Plotting may seem like just another puzzle game, but the sheer addictiveness is enough to give it an edge over many, more derivative, puzzle games that are around at the moment.

Matt Evans

## THE BARD'S BACK

Fans of the Bard's Tale series of fantasy role playing games will be pleased to learn that EA is soon to launch a new addition to the series. Bard's Tale II: Thief of Fate contains more spells, more monsters and even more dragon levels.

The story goes that the fabled city of Skara Brae has been left in ruins. As the townfolk celebrated their victory over the evil Maglar (ie Bard's Tale II), his master, the mad god Tanja, arrived seeking revenge and reduced the town to rubble. Skara Brae is only the

first in a long line of cities which Tanja has threatened to destroy.

Your job is to assemble a group of adventurers who will travel through this medieval world in search of Tanja. During your travels you'll encounter monsters, magic, and an assortment of associated medieval fantasy role playing things.

The game includes 84 dungeon levels and 7 different dimensions, with up to 5000 monsters and 100 magic spells available.

Jason Holborn



With the Amiga's increasing importance within the multimedia market, software producers have been quick to produce packages to exploit the interest generated by the hypermedia type. Microware's VIVA system has been available for a number of months now over the pond, but now it's available within the country thanks to its Amiga-based Microware.

VIVA is a hypermedia authoring system for the Amiga that is designed for the production of multi-media information systems. VIVA gives you control over text, graphics, video, sound, colour and animation, all from within a nice friendly intuition-based user interface. No multi-media system can claim to be truly multi-media unless it can do just that – control multiple information sources. VIVA is capable of controlling video recorders, laser video disk players and a full range of other visual media devices.

VIVA uses an icon-driven interface that is extremely easy to use. Through the use of a unique visual construction set, anyone can create complex multimedia applications with the click of a mouse (well, several clicks actually). Once you've produced your multimedia application, it can be saved out to a stand-alone form, therefore allowing VIVA to be used for the production of commercial multimedia applications. For more, give Microware a bell on 0725 58520.

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### DOSSING AROUND

A few weeks ago a copy of the latest version of DR-DOS arrived in the post, and I've now played with it enough to give a first opinion.

DR-DOS is Digital Research's version of MS-DOS, and claims to be 100 per cent compatible with Microsoft's product. Previous versions claimed this, but fell down often enough for the system to be limited to a few Far Eastern suppliers who banded it with cheap clones because of its slightly lower price. With the latest version however, Digital Research has attempted to make DR-DOS 5.0 a significant improvement on the opposition.

It does feature a number of extended commands, and all

commands have a help option if you add /h, but where DR-DOS really comes into its own is in the realm of memory management.

If you have a 286 or 386 machine with some spare memory over the 640K, you can get DR-DOS to load itself into extended memory; disk buffers and other DOS work areas can also be shifted out of the way, leaving upwards of 630K free! This can be extended further if you have a VGA or Hercules display, and almost 700K of DOS-usable memory is possible.

So far I've come across no compatibility problems at all, and DR-DOS seems an excellent alternative to MS-DOS for the memory hungry. DR-DOS costs £138 from Digital Research on DECUS 35304.

### SETTING UP

One of the recent features of DR-DOS is its installation. Putting a new operating system on a machine is normally a frightening prospect; reformatting the hard disk is by no means uncommon. With DR-DOS all you do is put the master disk in the drive and turn the computer on.

DR-DOS boots from the disk and automatically loads the installation routine, which asks you whether you want to maximise memory or speed, or balance the two. Having made your choice it takes you through the automatic .bat and config.sys files it recommends, explaining each option and allowing you to alter any you don't like. Finally it strips MS-DOS from your hard disk and puts itself in its place.

A completely painless procedure.

Another product I've been looking at this week is similarly painless to install: the Microtest teletext adapter.

### PAGE THE CEEFAX

The PC version of the teletext adapter has been a while arriving; versions have been out for other computers for several years.

It consists of a half-length 3.5" card with an aerial socket, which you plug into a free slot, and a disk of software which you copy to your working disk. After telling a setup program what display and printer you have, typing TELETEXT turns the PC into a teletext terminal, capable of picking up Ceefax, Oracle and 4TH.

I can see this device being a hit with stockmarket types with the latest share prices instantly available on their PC. I haven't yet tested it to see if it will run in a multi-tasking window under Windows 3, but I see no reason why it shouldn't.

You can write scripts for the programs which will automatically go to certain Ceefax screens and download the text to disk, and they can also be set to do this a specific time.

Perhaps more interesting though is the device driver Microtest provides which lets you write programs, in any language, which can access screens and download information. Share portfolio programs already exist for the ST which automatically keep track of your stocks, and PC versions will not be long coming. On a more down to earth level, horse racing and pools predictor programs could automatically keep themselves up to date.

The teletext adapter costs £195 from Microtest on 0705 919594.

### PAN'S PEOPLE

My main computer is out of action at the moment; the strain of having dozens of pieces of newish hardware and software installed seems finally to have killed it. So I went to the corner of the office where the newly-arrived hardware is kept to see if I could find a laptop to borrow to do some writing. There were two machines there: a Sharp and a Panasonic.

The Sharp, reviewed in this issue, is as near to gorgeous as a PC can get. It weighs less than an IBM keyboard yet has a VGA display, a 286 processor and a hard disk. The test is not incredible when you ask the thing up; you simply can't believe that there's a disk in there. I was forced save a file and hold my ear to the casing to prove to myself that the C drive wasn't just a RAM disk.

But as soon as the Technical Editor saw me looking at it he shooed me away

## BAD BLOOD

Origin • £34.99



"If the humes back an attack, we're slag", 'twist Hermsak said, an' he's no spud. 'S why you're in Highb' Yabk out on the plains now, backin' at slag! 'A couple a Jekins aims with yer ozone with a bubbling on yer tail. 'S tuff bet' a tuff.

Origin has certainly taken a break from the fairground world of the Ultima series with its latest release. Bad Blood takes place in a world devastated by nuclear holocaust, a world of 'warring wastelands, ramshackle towns, ravaged cities and hidden underground complexes teeming with forgotten technology and mutated monsters'. Forget Lord British, here comes Mad Max and the Thunderdome.

Despite these differences, Bad Blood very obviously uses the technology introduced with Ultima IV, although in a much abbreviated form. Gone are the many attributes on which a character's performance depends, instead there is simply a bottle of water to indicate your state of health: once it's empty, you're dead. It all goes to make Bad Blood a rather easier game to play, although there is still a very complex plot and an extremely intricate world for you to explore. The plot unravels as you talk to the creators, mostly males ('mutant' or 'humes' [humans]). Start with a single 'tuff' chat, or asking for the latest news, and if you're lucky a 'bloop' means you that the creature has mentioned something new, and a new 'keyword' has appeared on the 'Talk about' menu.

But it's the graphic system that really grabs the attention. The world may not be as big, but it is drawn in the same lavish detail - particularly on a VGA display. An excellent introduction to role playing games for those who find the scale of the Ultima series just a bit daunting.

Matt Nicholson

## FAST COPYING

The XCOPY command must be one of the best reasons for using a graphical user interface. Time after time I try to copy a directory and get the response 'File not found', then discover I had typed 'COPY'. It's like trying the asterisk key near the full stop! Anyway, there is a much easier command for shifting around whole disks or directories of files which also works considerably faster and doesn't involve any 'x'. The XCOPY.

XCOPY copies everything in one specified directory to another. So, from: \\disk: \\backer would copy all the files in the directory 'back' to the directory 'backer'. If you don't specify a directory to be copied to, MS-DOS assumes you want to copy to the current directory. So to copy all the files on a floppy to the current directory just type:

XCOPY \*

Another handy feature of XCOPY is the option to copy all of the subdirectories as well, with the /s option. So:

XCOPY \*/s

will copy all the files in the disk to the current directory, even those tucked away in subdirectories on the floppy.

The XCOPY command is fast because it doesn't read a file then write it, then read the next and write it like COPY does; instead it reads as many files into memory as it can and then writes the lot in one go. With a lot of small files this is considerably faster.

XCOPY is an external command, so on a floppy disk system you'll need the MS-DOS disk in the drive to use it. Hard disk users need to make sure that the directory with the MS-DOS files in it is in the PATH statement in the autoexec.bat file, thus:

PATH C:\MSDOS

or whatever that directory is called. You can check by typing PATH at the C> prompt; a list of the directories in the path will be shown. We'll explain the PATH command in detail next week.

towards the Panasonic.

The Panasonic 350 is right at the other end of laptop competing. It's huge and heavy and not a lot of fun to carry any distance. The weight is added to by the separate battery pack and mains adapter, only one of which can be slotted into the machine at a time.

But on getting it home I discovered that all that weight had been put to good use. For a start it shifts a bit; a measurably rapid 40MB hard disk and a 386 processor see to that. Its LCD VGA screen is not the best of its kind, but it offers every display option you could ask for, including being able to plug in my EGA monitor to see some work in colour. There aren't many desktop VGA systems which let you do that.

With a keyboard plugged in to the external socket, a mouse in one of the serial ports and a colour monitor plugged in, it's possible to fold down the Panasonic's lid and use it as a test desktop.

Also adding to the size and

weight is the full-size 16-bit expansion slot which will take any card you like.

All in all then the Panasonic is an extremely powerful and versatile machine, which only suffers in comparison to other laptops which can best it in size, but not in power.

The Panasonic 350 costs nearly £4,000 without the VAT, but there are cheaper versions. Panasonic is on 0344-853551.

### SOME MISUNDERSTANDING

It appears that we've got a bit confused with some press releases in the PC column a few issues back. We said that Flo products were now being distributed by Software Toolworks - not so! In fact a few end-of-line products are being cleared by Toolworks, but Flo is very much still being distributed by DLL on 0983 864674. DLL is the place to go for the latest versions of the handy FormFields and FormFill utilities.

Stuart Anderton

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- ▲ Word count, many block commands and calculator
- ▲ Powerful spellchecker
- ▲ Can work on two documents simultaneously

▼ Not beginner-friendly

### ● KIND WORDS

Amiga Centre Scotland 035-557 4342

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Produces the best printer output of any word processor on the Amiga thanks to special output modes which simulate near letter quality. Has lots of good printer drivers to exploit even the most simple of printers.

- ▲ Excellent printer output
- ▲ Graphics can be imported

▼ Lacks a word count unless you spell check

### ● SCRIBBLE

HB Marketing 0895 444433

£39.95

A simple to use word processor with spell checker and mail merger. Retor-

mits text as you type. Although it lacks graphical functions, its simplicity makes it an excellent word processor.

- ▲ Simple to use
- ▲ Mail merge and spell checker

▼ Can't import graphics

### ● WORDPERFECT

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A hefty 500 page manual teaches you how to use WordPerfect. A huge spellchecker dictionary and a thesaurus add to the bundle. Can call up a command line interpreter from within the program.

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- ▲ PostScript compatible files
- ▲ Colour separations can be created
- ▲ Three dictionaries

▼ Requires 128k of RAM

▼ Two drives strongly recommended

### ● SHAKESPEARE

Creswell Ltd 0604 731 2111

£29

Clear and informative manual. Produces colour pages directly on colour printers. Has some problems with large documents so best used on single pages. Graphics can be imported and each retains its palette. PostScript compatible.

- ▲ Ideal if you have a colour printer
- ▲ FF file import

▼ No magnify function

▼ PostScript output is only in grey scale

▼ Graphics can't be edited on the page

### ● PUBLISHERS CHOICE

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- ▲ Includes powerful word processor - Kindwords
- ▲ PostScript compatible
- ▲ Graphics capabilities in Pagemaker
- ▼ Font and hyphenation information not imported with text



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A PostScript output is supported  
A Text can be edited on the page

V Lacks a WIMP environment

## PAGESTREAM

Silca Systems 081-869 1111  
£171.95

Text can be flowed around graphics in most DTPs, but Pagestream has the edge in many ways. Magnification is not limited to five sizes - you can work at virtually any magnification.

A Flexible text flowing  
A Large and easy to edit spell check dictionary

V Difficult to produce colour separations

## GRAPHICS

## PHOTON PAINT 2

Microfilm 0703 703030  
£28.95

Art package capable of producing HAM images. Comprehensive set of tools allowing re-scaling, flipping, rotation, bending stretching and much more.

A Wide range of tools for image manipulation  
A Wide range of clearing options

V But some are very slow to use

## DIGIPAIN 3

News/Prevision 081 330 7166  
£39.95

HAM art package with facility to create images up to 1024 by 1024 pixels - the only limitation being memory. Good text entry system which uses a buffer. Text is manipulated before it's put on screen as a brush. Friendly interface between package and user

A Good text manipulation  
A Huge images possible

V No fill or airbrush  
V Airbrush magically made

## DELUXE PAINT III

Electronic Arts 0753 49442  
£79.95

Excellent art package that allows use of full overcan and extra half-tone screens. Simple animations can be created too - very easy to do. Stereo mode shows you from accidentally brushing over the wrong part of the screen.

A Perspective fill  
A Half-tone Mode  
A Full overcan screen

V 1 Mb required  
V IBM not supported

## FANTAVISION

Domart 081 780 2322  
£38.99

Uses polygons to create animated

objects and relies on tweening to create the illusion of movement. Full colour IF files can be imported to make up the background scenery.

A Fast animated sequences that don't eat up much memory  
A One object can be easily transformed into another

V Objects are silhouettes

## MOVIE SETTER

HB Marketing 0695 444433  
£89.95

Uses a series of sprites to create animations which are more cartoon like in nature than Fantavision. Sprites can be brushes created with most art packages - they're in IF format. Storyboarding makes it easy to use and see what's going on. Animation can be played, rewound and stepped through frame by frame.

A Minor changes to productions can be viewed instantly  
A Sound is easily integrated

V Works best with IBM  
V Eats up memory if not careful

## PIXMATE IMAGE PROCESSOR

£40

Allows pictures to be transformed from one form another - HAM can be reduced to 32 colour pictures for example. Images can be cleaned up, de-focused, squashed or stretched.

A Converts images from one format to another  
A Wide range of clearing options

V But who the hell distributes it?

## X-CAD

Commodore 0628 773088  
£199.95

Very fast re-drawing of images. Has great potential in the range and quality of images that it can produce. Hardware requirements mean that you must be very serious about your CAD to justify buying it.

A Best CAD package available  
A Fast  
A Comprehensive

V Needs 2Mb  
V Better with hard drive

## INTRO CAD

HB Marketing 0695 444433  
£38.95

Extensive colouring routines enable realistic and detailed objects to be created. Easy to include text too. Ideal as an introduction to CAD

A Simple to use and much cheaper than X-CAD  
A Excellent results can be obtained with a bit of skill

V Not as comprehensive as other packages

## SCULPT 4D

Amiga Centre Scotland 031 557 4342  
£38.95

Creating 3D ray traced animations can be very satisfying, and Sculpt 4D is an excellent tool for doing just that. Adding text to the animations is

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considerable more easy than in the previous incarnation, Sculpt 3D, Sculpt Animator is also included in the price.

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● Just plug in and away you go

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▼ Manual a little tricky for the beginner

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Fight simulators are often dull and boring, but Interceptor is far from that. You're at the controls of an F-16 and have to accomplish many missions against hostile forces. The graphics are superb and the missions will challenge even an ace pilot.

## ● VIRUS

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Virus was originally written on the Archimedes and was thought impossible on any other machine. The Amiga proved them wrong. You too can experience the wonderful graphics and varied missions as you fly around worlds, zapping and fighting for survival.

## ● DRAGONS' LAIR

Entertainment International 0168 541126  
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It might seem expensive, but that's because it comes on six disks. Dragons' Lair was one of the first arcade games to use laser disc technology and it's even more impressive when you realise that your Amiga does it with no extras—just its memory and good programming.

## ● POPULOUS

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The tale of 999 worlds lies in the balance with you controlling the forces of good. Play god and create a world for your people to live in—not forgetting to destroy the minions of evil of course, before evil destroys your people.

## LANGUAGES

## ● ARGASM

Argonsoft Software  
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The fastest assembler available. It's compatible with most other assemblers so you can just transfer a file to Argonsoft and carry on working.

A Very fast assembler  
 A Compatible with Dspac

V Can't assemble to memory

## ● GFA BASIC 3

GFA Data Media 0734 794942  
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Amiga BASIC has its good points, but if you want a more friendly and powerful language to program in there's GFA

BASIC. It can be used as a standard BASIC, but to get the full benefit from it you need to use the more potent structured commands. It's compatible with Amiga BASIC too—so you won't have to start all over again if you convert a program.

A Fast interpreted BASIC  
 A Structured language

V Requires compiler to produce stand alone code

## ● HISOFIT BASIC

Hisoft 0525 718183  
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A very fast compiled BASIC with a powerful text editor to make life easier. Instruction manual helps you through the tutorial programs. Can compile Amiga BASIC programs with no modification.

A Produces very fast code  
 A Compiled language

V No interpreter—you must compile in between each modification to the program—which wastes time

## ● LATTICE C V5

Metacore 0372 428781  
£241.90

C is the next best thing to assembly language when it comes to speed, and Lattice C is a very good implementation of C. Includes a powerful debugger when things don't go right. Also has a powerful text editor for creating the code and two very handy manuals.

A Good text editor  
 A The best and fastest version of C

V Price to match

## MISCELLANY

## ● SUMMASKETCH

HB Marketing 0885 444333  
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Graphics tablets are used commonly in CAD because they allow greater control than the humble mouse. Summasketch is a tablet for your Amiga which enables you to draw and scribble to your heart's content. Transferring technical diagrams is a doddie thanks to a widget with a crosshair and a pen.

A Crosshair and pen included  
 A Good alternative to mouse

V Darn expensive

## ● AMDRIVE

ASAP 0724 286222  
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A Fast storage system  
 A Cheap

V Needs Kickstart 1.3

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be grabbed in real time. Basic unit grants 320 by 200 images in 16 colours, but for a bit more cash you can swap 320 by 256 images in 4096 colours.

● **Very fast memo image grabber**  
Can play back a sequence of frames from memory

▼ Software incomplete

### ● VIDEO STUDIO

Maze technology 081 520 9753 £39  
A complete post-production utilities package. Can be used as a video filter. IFF file import. Plenty of wipe/dissolve patterns to make things more impressive.

▲ Comprehensive

▼ Requires two disk drives and 1Mb RAM  
▼ For best results will need a genlock

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Digital International 0395 270273  
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▲ Refers to a PC - you have to virtually re-type the entry

### ● MINIGEN

Applied Systems Development Ltd 0724 282222 £113.85

A genlock device which allows you to produce Chart Showstyle overlays on your videos. Uses standard IFF files to overlay. Easy to use.

▲ Lots of software available to exploit Minigene

▲ Cheap

▼ Poor manual and introduction disk

### ● A-MAX

Entertainment International 0268 541126 £134

Why bother with a Macintosh emulator when you've got an Amiga? Because Mac DTP software knocks spots off anything on the Amiga. Admittedly you need at least 1Mb of RAM to do any useful work with A-Max, but a 1Mb Amiga is considerably cheaper than a Mac.

▲ Works with most Mac software

▼ Doesn't support hard disk... yet

▼ Need to purchase Mac ROMs too

### ● PERSONAL TAX PLANNER

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▲ Easy to use

▼ Tax is boring

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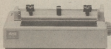
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ST user seeks people interested in Atari art, music and programming. Write to Jamie Branson, 6 Swindon, Wilmslow, Tarnworth, Staffs. B77 4LD.

WATNE needs help. Anyone in the know out there who can recommend good books or programming the Amiga. Contact Wayne, 50 Farnham Road, Loughborough, Birmingham, B21 5AP.

I would like to get in touch with anyone 18-18 with an IBM PC or compatible. Michael Marshall, 48 Sunnyside Road, Heme Bay, Kent, CT6 6LL.

DOES anyone know how to arrange a serial connection between a C64 and an Amiga? Tel: Jim (0524) 355553.

AMIGA contacts wanted to exchange details etc, or just as a pen pal. Phone Penny (0482) 788200 evenings. For address see HURRY!

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Well now, with the help of your Amiga, you can put a stop to all this! Take a page out of Page One's colouring book. It was a licensureware program called Colouring Book. The idea is simple. Load in the line drawing of your choice, select a colour from the palette, and paint away. The colour spreads to cover the entire area. Even my little three-year-old brother could use it, with far superior results than a hand drawn mess.

A batch of pre-drawn pictures for you to fill in come on the disk, but if you're a fine artist yourself then you can come up with extra outlines with another art package.

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# THE PD COLUMN

There is a lot of software out there available for the price of a disk. This week Adam Waring turns his attention the Amiga and CPC, and some of the sources you can tap for PD information.

sky would be better off blue than green, you can quite easily paint over previously coloured in sections.

Being licensureware, Colouring Book is slightly more expensive than real PD. Then again, the programmers behind the software got a quid for every copy sold, so the extra cash is going to a good cause. Colouring Book costs £3.50 from Page One PD.

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An issue or two ago I mentioned a rather good-looking program that was hindered only by the fact that the instructions were written completely in German.

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The text used throughout the game is as plain as a packet of ready salted crisps. It's only the vital game instructions that are gibberish to non-English speakers.

Apparently the German programmer had the smattering of English necessary to put in the in-game info, but the task of translating pages and pages of complicated instructions was simply too much.

I expect you're wondering what all this is leading up to. Well, Amigaheads has informed me that it has had authorisation from the programmer to translate the information file into our own fair tongue.

So, if you want the English version of Enterprise, get in touch with Amigaheads on 0703 785680.

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ies as assemblies, cut down CAD packages and bits and pieces like tape header readers and the like. Many of the programs have been taken from the hallowed pages of that rather wonderful magazine *Amstrad Action* (available at all good newsagents at the remarkably low price of £1.45). So it may be worthwhile if you missed out on the issue with that wonderful type-in, or maybe you just can't be bothered to type it in.

Header Reader will give you all that valuable information about the type of programs on a tape. It'll let you now things like file size, type, and whether it's a protected file or not. It'll even show you a graphical representation of where the program sits in memory.

Microsh will help to keep your program away from the prying eyes of Multi-base users. It's a subroutine that can be

tagged onto the end of your own programs, and detects the presence of the Multibase. If it finds one it simply crashes the machine, erasing all trace of the program from memory.

464 owners who are fed up with their machine not being able to run certain BASIC programs will like Copychd. As you'd expect, the program emulates the COPYCHDS command that's only found on the 6128.

Amery translates your CPC keyboard into French. Our continental cousins use a different keyboard layout to us, which can be a bit difficult to get used to. So if you use any foreign software, it could be just the fix you need. ■

### MORE PD

Every week this column informs you of some of the very best PD software around. However, if you're interested in

expanding your own collection, then where can you get more details of stuff to suit your machine?

Being a general column, I try to offer information on PD for as many machines as possible. Only a certain amount of space can be devoted to each specific machine. Future Publishing, who produce *Express* also publish many other titles, covering virtually every other computer around. Most have some kind of public domain section.

CPC owners will find Amstrad Action's Free For All section very informative. Two whole pages are devoted to the subject every month. It has all the details of what's happening in the Amstrad PD scene. As well as regular reviews of the PD that's vital to your collection, Caroline Lamb, the writer behind the column, presents her own fortnightly views.

If you're a 16-bit owner, then the magazines *57 Format* and *Amiga Format* may just be your cup of tea. As well as the several pages on our favourite subject, each issue has a free disk mounted on the cover. And, you've guessed it, there are PD programs a plenty for you to try out.

Talking of *Format*, a sparkling brand new magazine is about to see the light of day. *Commodore Format* is about to become Britain's bestest, brightest

magazine for the Commodore C64. And editor Steve J has promised that PD will feature prominently in the new mag.

Business type people may find PC Plus and 8000 Plus worth a look. Although neither has a regular PD section, they do cover it occasionally, sometimes running quite comprehensive articles on the subject. And of course, as well as the public domain coverage in all these magazines, they're a damn good read too. ■

### WHERE TO GO

Page One Public Domain, 46 Hilbert Avenue, Portliff, Newcastle, Staffs, ST5 8JZ. Page One are an Amiga public domain library, so take a page out of its book. Most of the disks are £2.50, whereas the licenseware will set you back an extra pound.

Robot PD, 2 Trent Road, Oakham, Rutland, LE15 9HF. Robot provides PD for your CPC. And what's more, it's pretty cheap stuff. Just send 45p for a cassette or disk full of all the latest PD, but remember to enclose a blank tape or disk and an SAE. Alternatively send it one hundred pennies, and it'll supply the tape and postage.

### SEND IT IN!

Does your PD library have software so hot that it's cutting your fuel bills in half? Then we'd like to see it. We want your best stuff, preferably on disk. We cater for all the major formats, and a few more besides, so whatever machine it runs on - send it in!

Oh, and before you put that Jiffy bag in the post, make sure you include all those ultra-important details like your prices, address, catalogue...

Our address - as if you didn't know - is:

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# THE ATAR ABC

Now, there's a PC-AT compatible that not only solves problems like other AT compatibles, it also solves the one problem that its predecessors have created... affordability.

Silica Systems are pleased to present the new Atari ABC. The ABC is a 286 AT compatible that runs at over 5 times the performance of the IBM XT. This is achieved by combining the power and speed of a 15-bit 286 processor, with Atari Corp's development experience and engineering capabilities, which use the very latest in design technology. However, the Atari ABCs are available at 'XT' prices and many XT owners will wonder why they need to buy, but not lose!

The ABC is a reliable, high performance computer, built to exceptionally rigorous standards. It is well designed, to a state of the art specification, maintaining maximum expansion capability for the future. This includes up to 4Mb of RAM and 3 AT expansion slots. Plus, virtually for a PC at this price, the ABC has the ability to install two of those extra drives, with the cabling already inside the CPU.

The ABC has a host of impressive features, all built-in as standard, encouraging simple installation and ease of use. In addition, the ABC is a smart, fast and quiet operating system that you will notice is fast on your desk then other PCs. Except, of course, when you begin to take advantage of its AT power.

At its remarkably low price point, the ABC is ideally suited for home, office and educational use and will take full advantage of the vast range of PC compatible software. And, with 12 months FREE on-site maintenance (3 hour response), you can rest assured that your ABC will be fully supported.

The ABC is the latest addition to a comprehensive range of both 286 (8MHz or 10MHz) and 386 (10MHz and 20MHz) PCs from the Business Systems Division of Atari Corp. Atari's PC range offers an unsurpassed combination of reliability, compatibility and expandability, with unique features like Atari's 44Mb removable hard disk on their PCs. Return the coupon NOW for further details of the complete range of PC products from Atari's Business Systems Division.

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 Which computer(s), if any, do you own? \_\_\_\_\_

# THE MOVING PICTURE S

**T**he Edinburgh Festival is the perfect place for the annual Amiga Animation Competition. It is the largest and most prestigious gathering of art and culture in the world, and its 'Fringe' is the mecca for every alternative and up-and-coming art form known to humankind.

Right at the fringe of the fringe was the 3rd Amiga Animation Competition staged, as usual, by The Amiga Centre Scotland. 36 competitors exhibited work that ranged from the ugly and crude to Eugene Messina's superb *Main Video*, the ultimate and obvious winner.

The judges were Andrew Ball, Commodore's press and public relations manager; Donald Holwell, a freelance animator and lecturer in animation and illustration at Edinburgh College of Art; and Leslie Mitchell, a producer of corporate television programmes who uses several Amigas in his work.

The 11 prize winning animations were chosen from

Last week saw the third annual Amiga Animation Festival, brian Larkman was there and saw the winning graphics.

a surprisingly poor selection of entries presented on video and disk. The judges considered that most of the professional work – predominantly show-reels of corporate video – was on the whole rather boring and derivative; just how many more flying logos can we take?

Still, considering the subject matter, this decision was rather harsh. Several of the companies concerned are groups of ex-art students or amateurs who are struggling to break into a cut-throat area where the big companies have mega-finance and still produce boring material. Next year perhaps there will be a special classification for show reels and corporate videos.

The amateur work was also rather disappointing,

showing an overall lack of imagination, even including one of the *Deluxe Paint III* subplots! Maybe there were just not enough entries. Nevertheless the prize winning animations show just what the Amiga can do.

Jason Gears' *Nature Calls* for example is a long unfinished animation sequence derived from about 2,000 hand produced line drawings on paper; digitised, line-tested and coloured in *Deluxe Paint III*, and recorded onto VHS video. This combination of traditional and computer techniques looks like being the only way that traditional animators will move over to computer animation. The struggles of Gee's dog to get the door opened for the 'call of nature' is accurately

## AND THE WINNER IS... EUGENE MESSINA'S MAIN VIDEO



• A sequence from the winning animation, *Main Video* by Eugene Messina. The original pictures in the sequence were in HAM format; these have been simplified to 32 colours.

# SHOW

observed and well animated. He won *Real 3D Pro* and *ImageLink*.

Like *Nature Calls*, Kalle Karlsson's *Information About AIDS* is a traditional 'illustrative' animation executed in 2D using a computer. Nevertheless the subject has been dealt with in a unique way so that the action is enhanced rather than dictated by the computer techniques used. Karlsson won *Real 3D Beginner*, *Deluxe Video II* and *Deluxe Music*.

In contrast, *The Tane-Slate Run* by Scott Johnson is completely computer generated using *Sculpt-Animate 4D Jr*. It has a simple and rather boring theme – a police chase of a red Ferrari-like car – but the smooth, carefully choreographed movement of the vehicles and camera take it out of the ordinary.

Far and away the best however is Eugene Messina's *Main Video*. He will receive an Amiga A3000. Again, this is completely computer generated using *Turbo Silver* and recorded in five second sections onto a domestic VHS recorder using a modulator. The plot and scene are really very simple, but the execution is so clever that a very strong atmosphere is evoked just with lighting and camera moves.

The scene is a desktop, illuminated fitfully by a green glass shaded desk lamp with a ball connection – or is it an unknown electrical disturbance. Around the desk is just darkness.

The camera swoops smoothly and almost lovingly around a series of mundane objects on the desk, beautifully modelled and texture-mapped by Silver: an ornately framed photograph, a Coke can, a glass of Coke, a Micky Mouse alarm clock, an ashtray nicked from a pub. Suddenly a small UFO appears, hovers above several objects, absorbs or transmutes them, then disappears.

The other prize-winners were: Chris Blackmore with *Metanway* and *Recursive*; Chris Banks's *Zombie City*; Art McKendrick with *Exit Anim*; W Mackey for *The Plug*; Adam Gill for his original ideas in *Tapestry*; Kevin King with *Aqua-Snoopy*; and Sharon Waterson for the only genuinely funny animation in the competition, *Poll Tax Avoidance, Lesson #1*. ■



## THE RUNNERS-UP



• Two scenes from W Mackey's *The Plug*, (right and below)



• The *Bayeux Tapestry* reproduced by Adam Gill in *Tapestry* (below). A still from Sharon Waterson's *Poll Tax Avoidance Lesson #1* (bottom left), Chris Banks's *Zombie City* (bottom centre) and Jason Gw's *Nature Calls* (bottom right)



Oh boy have we got one for you this week, well, to be specific we have 25 for you, 25 copies of Thalion's highly rated Atomix. And if that isn't enough we are also offering 10 runners-up prizes of chemistry sets – stick bombs show!

For those grown-up souls out there who think that computer games mean mean shoot-'em-ups or complex simulations, think again: Atomix is an absorbing molecular modelling game.

You are shown a molecule in the lower left-hand side of the screen, your task is to relocate the molecule in the main screen. Sounds easy really, the only problem is that you can't actually control the placement of the atoms, you have to steer them until they hit obstacles. There are 30 levels of this.

Amiga Format had this to say that about the game: "Well, simple, highly addictive and very playable. A great little game that fans of Xor and Pipe Mania will love."

## The right chemistry

ST Format said this: "If you're the kind of game purist who wants absorbing gameplay rather than flashy graphics, then Atomix is going to keep you perched on the edge of your seat for hours. Atomix is undoubtedly one of the most engrossing puzzle games to ever hit the ST."

Just to show that we take an interest in our own competition, Express said this: "This is a wonderfully addictive challenge which in many ways is more appealing than E-Melon. The puzzle element here is much more thought provoking and you don't need to be a master of the joystick to win. Atomix is one of the most engrossing puzzle games ever."

This competition is open to anyone who buys this issue of Express – and we know whether you've bought it because this very page has been coated with a special film which detects non-paid for copies.

In the event that you cut out the coupon below, write your name and address on it, answer the two easy questions and send it into us here at Express, without having first paid out 50p for the magazine, you will be visited by six large members of the local Order of the Aardvarks bearing switchblade trousers, if you see what I mean, and I think you do.

The two questions you need to answer are as follows:

- 1) What is the chemical symbol for Iron?  
A) Ir  
B) Fe  
C) Si
- 2) Who invented the Bunsen burner?  
A) R F Bunsen  
B) W W Bunsen  
C) R W Bunsen

The address to send the completed coupon to is: Atomix competition, New Computer Express, Beaufort Court, 30 Monmouth St, Bath, Avon BA1 1BW. Entries should be received no later than Monday September 10 and that's 1990. The first 35 entries to be drawn from the deputy editor's wide brimmed fedora will win the prizes. The editor's decision is final. Exotic postcards more than welcome. ■

### ATOMIX

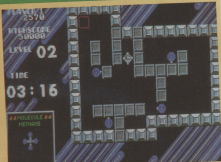
PC  
GAME  
WEEK

Grandslam  
• £19.99

At first sight this could be mistaken for an educational program, as the object is to build ever more complicated molecules by maneuvering individual atoms into their correct place. But after a few games it begins to look like this is just a cover for a simple, if addictive, maze game.

You start with the basic water molecule, made up of two blue balls (hydrogen atoms) and one red ball (oxygen). These are distributed around a simple maze, and must be moved into the shape shown in a window at the bottom of the screen. The catch is that the maze has no friction – once started in a particular direction the balls don't stop until they hit something, either a wall or another ball.

This is the secret of the game, and means you have



to plan ahead if you are to stand a chance of solving the puzzle before the timer runs out. Finish it, and your score is totted up and you move on to a more complicated molecule. Fail, and it's back to the water molecule again. There are 30 levels in all, so it should keep you busy for

quite a while. The game has some frustrating aspects, but it's good clean fun.

In the end it could even be quite educational. It may bear no relation to how molecules actually came into being, but after a good session you certainly remember what the various

molecules look like. Grandslam certainly thinks it's educational – the company is giving away a Commodore Amiga to the first chemistry teacher to finish 20 levels, and £100 to the student remembering the teacher.

Matt Nicholson

### WINNERS

The winners of the Yolanda competition were:

Robert Brooke, Dowsbury, West Yorks; Mark Krason, London W4 (hope the son is happy now); M Jones, Skimmersdale, Lancs; Mr C Jung, Colindale, London; J Vanags, Mansfield, Notts; Simon Dick, Bexley, London; M A Richardson, Walsend, Tyne and Wear; Douglas Anderson, Callodon, Inverness; Benjamin Williams, Earlsfield, London; AJ Northcote, Wetherby, Barks; Angela Day, Bradford, W Yorks; D Brown, Northfields, Tyne and Wear; T McLaughlin, Danestone, Aberdeen; Shaun Pugh, Horsforth, Leeds; Mr Kenneth Seddon, Edinburgh; Miss E M Don, Salford, Surrey; Hugo Crossley, Dakhham, Leics; Mr P J Burnham, Penrith, Cumbria; R E Treadwell, Helston, Cornwall; M Graham, Gravesend, Kent.  
Jolly well done.

NAME .....

ADDRESS .....

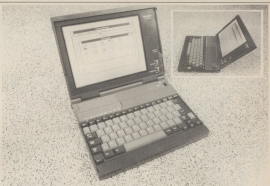
MY COMPUTER IS: AMIGA ☐ ST ☐ PC ☐ C64 ☐

FORMAT: 5.25-inch disk ☐ 3.5-inch disk ☐

The answer to question 1 is ..... The answer to question 2 is .....



# TIME FOR A SHARP EXIT



• Sharp's tiny laptop: would you believe there was a hard disk in there?

...with a computer in your hand. Portable computing remains a dream for most people, even those owning 'portables', but Keith Pomfret tried out an amazing machine from Sharp which lets you work on the move.

**T**he courier seat of a coach travelling at 70mph along the M4 is hardly the ideal place to review a computer, but the fact that this review was typed in that very place is testimony to the claim that the Sharp PC-6200 is truly portable.

The 6200 is an AT with a 80286 processor, 640K of RAM and a 20Mb hard drive. Yet it is smaller than a sheet of A4 paper and about an inch thick. If the machine is to be used both in office and mobile, there are a series of expansions and peripherals from Sharp and third party suppliers that effectively turn it into a desktop AT.

A hinge along the rear reveals a perfectly usable keyboard of the fashion now often used in laptops. The keypad is embedded in the right-hand side of the traditional QWERTY layout and accessed by a special function key. The row of function keys isn't full sized but as they see less use than the main keyboard, this isn't a problem. For those who do a lot of numeric entry and cannot manage with the embedded keypad, there's a port for connection of a numeric keypad.

In the top half of the 'clamshell' is an LCD screen with VGA display and contrast, brightness and inverse controls provides a stable although sometimes dull display. With crisp almost paper white LCD displays currently available, there's no excuse for dull displays, especially not from a company called Sharp. The hinge allows the screen to be set at a comfortable angle and the backlighting can be set to the optimum level.

## NO FLOPPY

The first thing that is readily noticeable is the lack of any floppy disk drive; instead there is a tiny 2-inch 20Mb hard disk. When the review machine arrived, the only way to loading software was a good quality serial cable. A connectable floppy drive is available, but for the review came was the order of the day.

The lack of any floppy drive was a little disconcert-

ing, but backing it up to the desk PC and using the supplied Laplink or the more elegant Fastwire soon had the necessary applications loaded. Anyone wanting to use copy protected software would need to invest in the optional floppy drive.

## IN USE

The 6200 is heavy enough to use on the lap in a moving vehicle without making constant drives to the floor at every bump, but light enough to carry in the hand or a case. There isn't a carrying handle but the machine is light enough to be gripped in the hand. Unlike some of the current generation of notebook PCs, the 6200 will not fit in the pocket but this is a plus, leaving space for a decent sized keyboard.

On the desk, on a BP table on the train, and perched on the lap on a coach the keyboard was fine. The keys have a good response and aren't too close together to cause difficulty to a touch typist. The small cursor cluster is a little fiddly at first and doubles up as a Pg Up, Pg Dn, Home and End cluster, activated by the same function key that controls the numeric keypad. This key also brings the Num Lk, Scr Lk, Prt Sc and F11/F12 keys into use. Dual function keys are a necessity in a computer as small as this but those which aren't accessible without activation aren't ones which would be used often in a frenzied bout of touch typing.

Using a word processor, where there was a lot of contrast, the 6200's screen was excellent but in programs where the transformation from multi-colour to greyscale involved several colours of a similar hue, the display was difficult to read, especially in direct sunlight. This shouldn't be taken as a severe criticism, but I feel that a bit of tweaking by the manufacturer could improve the display quality. All other aspects of the display were good with a screen refresh rate quick enough to handle the animation of a railway simulation game.

After using the 6200 for 140 minutes or so, the nickel battery pack was ready to curl up its toes. The indicator gave ample time to save work before an enforced power down. The battery pack is removable but without

a spare pack, any work saved to the hard drive is effectively imprisoned until the mains adapter is attached.

This problem manifested itself when miles from home (and the charger) with urgent work on the machine. This feature means that either the charger has to be carried around, spare battery packs must be bought or military planning of trips and use must be indulged in.

## NO BANDWAGON

The Sharp notebook computer is obviously the product of a well thought-out plan and not just an attempt to jump on the sub-laptop bandwagon.

The easy to understand manual works its way through the features available on the 6200, explains file transfer and Laplink, then sets aside a couple of chapters for the expansion of the system.

Sharp provides various routes of expansion, including extra battery packs, expansion units for add on PC cards, disk drives (3.5-inch and 5.25-inch), a numeric keypad, RAM card and CRT adapter.

In a surprising change from manufacturers' tendency to place head in sand when addressing third party peripherals, Sharp has included a chapter on the options available.

The PC-6200 is the centre of a system that allows true computing on the move yet can be used as the core of a desktop system. Its ease of use and expansion potential make it the most desirable notebook on the market today. ■

## PRICES

Sharp PC-6200	£3,041
3.5- or 5.25-inch disk drive	£241
CRT adapter	£52
Expansion box	£157
Battery pack	£138
Keypad	£57

Sharp is on 063-205 2333.

Hacking is now illegal, but it remains unclear just how the police are going to catch anyone who breaks the new law. Express talked to the police and to a hacker about the new act to discover whether the dodgy side of the comms world can sleep sound in their beds...



Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and the Commons, in this present Parliament assembled, and by the authority of the same, as follows:

A person is guilty of an offence if he causes a computer to perform any function with intent to secure access to any program or data held on any computer and if the access he intends to secure is unauthorised.

A person guilty of an offence under this section shall be liable on summary conviction to imprisonment for a term not exceeding six months....

So starts the Computer Misuse Act 1990, finally rendering hacking illegal. But already, with the act in force for only a few days, there are those who claim the act will be unworkable and the police need more powers in order to catch those responsible.

To find out whether or not the act will stamp out hacking, or prove to be lip service to the computer security lobby, Express talked to a policeman in the Metropolitan Police's computer crime squad, and to an accomplished hacker turned computer consultant.

#### THE FRAUD SQUAD

We met Detective Sergeant Doronov in the Fraud Squad's offices in London.

Q. There is a reluctance on the part of many of the subjects and victims of computer fraud to actually expose those frauds, certainly in some of the big finance houses, where they fear creating a lack of confidence. What would you say about this?

A. We've had no concrete evidence to that effect, but I expect that to be very likely, yes.

Q. How will you ensure a flow of information?

A. Well, as with any other crime, it's not our job to go out looking for crimes; it is for individuals to report crimes if they choose to. Just the same as somebody who is raped, they don't have to report it if they don't want to.

Q. But surely the law enforcement agencies have a very considerable interest where absolutely massive forms of fraud are concerned?

A. There is an awful lot of type that goes around about

computer fraud, but we have a unit here who deal entirely with computer crime and the figures that are reported to us do not suggest that there are millions of pounds involved.

Q. How many officers do you have in your unit?

A. Four: a Detective Inspector, myself, a Detective Sergeant, and two Detective Constables.

Q. Detective Inspector is the third lowest rank in the Metropolitan Police or any police force, is that right?

A. Er, yes.

*There is a wide range of hardware and software and no one person can be an expert in all of those matters, least of all a police officer. But what a police officer is an expert in is the investigation of crime.*

Q. Is this a measure of the attitude of the police towards computer crime?

A. No. The computer crime unit is part of the fraud squad and the fraud squad deals with complex or high value frauds. If frauds are investigated here they involve a lot of money, so if a half a million pound crime was reported here, it would not be considered a substantial fraud and that might well be investigated by a Detective Constable.

Q. How long has your unit been in existence?

A. Since 1985.

Q. What training have your officers undergone?

A. The Detective Inspector who first came here went to an FBI Academy.

Q. Are any of them computer science graduates?

A. No, but all of the officers have been to the Bramshill National Police Staff college and have undergone a course there.

Q. That only lasts four weeks, doesn't it?

A. Yes.

Q. Do you think that that is adequate?

A. It is sufficient to give officers a starter for ten in understanding technology.

There is a wide range of hardware and software and no one person can be an expert in all of those matters, least of all a police officer. But what a police officer is an expert in is the investigation of crime, and what he needs from a computer course is a background so that he can understand the technology.

Q. How many officers attend that course at any one go?

A. The course now caters for 12 officers with three courses running a year.

Q. How do the fraud squads in other constabularies respond to reported incidents of computer crime if they don't have a computer fraud unit?

A. Your question is better directed at those forces, but what I do know is that at least one officer in every police force has been trained on the Bramshill College course and that officer has normally been on the fraud squad. So they do have an officer who is trained.

Q. In the past constabularies would call upon Scotland Yard for an experienced murder investigator to go to their constabulary and pursue the murderer. Do you think this will happen in the case of computer fraud?

A. Other forces often contact us for advice, and we give advice, but you mustn't blow this out of proportion, this computer crime and make it out to be something so terribly terribly difficult. Of course it's complex and of course it's technical but the officer does have available to him a number of people throughout the country who are experts in various computer systems.





# HOW WILL THEY CATCH THE HACKERS?

For example, if we were to go to the scene of the crime where a particular computer hardware was used then we might contact an expert in relation to that particular hardware. Police officers are not computer operators or experts in that field, only the investigation. We use the expertise of others to give technical evidence in court.

**Q. Do you think therefore it might lead to some constabularies bringing in private security companies?**

A. There are very few private security companies that have the experts. Lots of people set themselves up as computer consultants but the first thing we do is ask what qualifications they have, and there are many that have no qualifications whatsoever. For an expert to be an expert in court he has to have qualifications in his subject. So no, I do not see our police forces bringing in private security companies.

**Q. The training received doesn't sound very much in light of the technical background of the people who have been involved in computer fraud. You are all experienced CID officers aren't you?**

A. Yes.

**Q. Do your officers move around to other parts of the police force?**

A. Yes, but having said that the force is looking towards setting up a core posting. That is not force policy at the moment, but all of the officers on the computer crime unit have been here in excess of what is considered the norm for a specialised operation posting – three years.

**Q. Do the experiences you have picked up make you invaluable in this new field of crime?**

A. Ha, ha, ha. I would like to think we were invaluable but I don't think anybody is irreplaceable. It is a specialist unit within a specialist organisation, because by its very nature the fraud squad is considered to be a specialist operation. We are to my knowledge the only unit in the country that has such a computer crime unit.

**Q. There are no such things?**

A. I don't think so.

**Q. Is computer crime on the increase? What figures are there?**

A. There are no figures on computer crime. Until now there has been no legislation that deals with computer crime, so the person responsible has been charged with criminal damage – therefore the statistics show that an offence of criminal damage has been committed. The statistics do not show that that was a computer crime, but once the Computer Misuse Act becomes enforced then figures will be available.

**Q. Previously offences relating to computer fraud were dealt with under a number of statutes, for instance the Theft Act?**

*Some have been embarrassed by the fact that they have been the victim, but nonetheless they have still reported the crime. Presumably there are others where embarrassment has stopped them from reporting the crime.*

A. Well Section 13 is obtaining property by deception, but it would not be usual to charge somebody with that because you cannot in law deceive a machine.

**Q. So the new act has come about because of the failure of these previous acts, would you say?**

A. No, I think that the new law has come about because there has not been a suitable law to deal with cases of unauthorised access.

**Q. I wanted to ask you about an unusual element of computer misuse and it relates to the police force themselves. You are probably aware that in the past**

some police officers have been convicted under the Official Secrets Act for giving out information stored in the Central Police Computer?

A. Yes.

**Q. Can you confirm that the new act would cover an officer, for instance, altering information about a criminal's record within the Central Police Computer?**

A. If the alteration that he made was a modification to the contents of that computer, and the modification was unauthorised, then he would be guilty of an offence.

**Q. So whereas previously they have been convicted under the Official Secrets Act they would now be dealt with under the new Computer Misuse Act?**

A. Yes, but there are always cases of altering information on computers that could have been dealt with under other statutes anyway.

**Q. Is all computer fraud insider crime, is it the disgruntled employee or the manager with esoteric knowledge of how his particular company works, or is there a dedicated bunch of criminal hackers who will invade someone's system?**

A. There are certainly people who hack into other computer systems, yes, and equally there are disgruntled employees, so both aspects are covered.

**Q. Are there more hackers or more employees?**

A. It's a bit difficult to answer because hitherto hacking itself has not been a criminal offence. But for a number of years, hacking has been known to our unit to be going on.

**Q. Will you find the new act workable?**

A. We've got to wait and see. It is brand new legislation and it is not really possible to say whether or not it is going to work until time has told us.

**Q. Is it possible to give us a scenario of a typical investigation in brief?**

A. Not really because no two investigations are the same.

I suppose it would be common for somebody to sit at home with their own computer and modem and gain access to somebody else's computer. ➤

**Q. And how would you pursue that particular crime?**

A. Well the same way that we would any other crime. You could perhaps equate that with somebody going in unauthorised access to somebody's house and stealing property. Then there is a procedure that the officer goes through in that investigation. I'm sure you wouldn't expect me to go into the technical aspect of how we actually detect offenders.

**Q. Some areas of fraud involve very considerable sums of money. They are usually perpetrated on banks or building societies. Are they reluctant to give you access to their computers and things of this kind?**

A. No. Those that to date have reported crimes have been most helpful in assisting us with the investigation.

**Q. There has never been any fear on their part that to expose their particular systems to you?**

A. Some have been embarrassed by the fact that they have been the victim, but nonetheless they have still reported the crime. Presumably there are others where embarrassment has stopped them from reporting the crime.

**Q. In America a number of law enforcement agencies have turned around hackers where they have discovered somebody who has penetrated their systems. Instead of arresting and charging them**

**they have used them to give guidance and education. If you like, to the enforcement agencies on how they perpetrated particular crimes. Have you any experience of that here?**

A. In my experience with the United States authorities people who have committed crimes have been prosecuted. As in all cases in all police forces throughout the world there are people who give information to the police about the activities of others and they may themselves be hackers or who have been hackers in the past. Perhaps you can tell me of somebody who is actively hacking that the police are not prosecuting and are simply giving them immunity in order to get information?

**Q. Certainly I know of a number of cases in the United States where this has occurred, where they have actually put together a team of hackers. They are used by the police to penetrate systems and to give guidance and education to their officers who are involved in the same line of work as yourself. I know certainly of some cases in this country where hackers have been detected by private companies and have been used by those private companies to explain to them how they have cheated and defrauded them and have done so on the basis of non prosecution.**

A. Well that may be true, because simple hacking has hitherto not been an offence. Now it is perhaps companies will take a different attitude.

**Q. I think I'm right in saying that the police themselves could not offer immunity but, the office of the Attorney General, or the Director of Public Prosecution or the Crown Prosecution Service might be able to do so.**

A. That's right.

**Q. Could you perhaps foresee a situation in the future where it might happen.**

A. It would be very rare for a person to be given immunity from prosecution for an offence that he has committed unless his evidence was going to be extremely valuable in a subsequent prosecution. The immunity would only relate to the particular offence that had been committed. It would not relate to offences committed in the future.

**Q. What are your views of the penalties under the new act?**

A. The police do not normally involve themselves with the penalties, because the penalties are really nothing to do with the police.

It is Parliament who creates the laws and Parliament who set the penalties.

**Q. Do you consider them sufficient to deter?**

A. Well there is a maximum sentence of five years for some of the offences - that's quite a substantial term of imprisonment. If somebody is given a conditional discharge, when perhaps they should have received a

## BIOGRAPHY OF A HACKER

Maynard Wilson (not his real name) doesn't look like the stereotypical hacker. This slight, dapper character in his early thirties with a conservative tie piece, penicillin and regulation briefcase and unimpeachable easily be mistaken for a junior partner in a firm of city accountants.

When we interviewed him, he visibly winced at the term hacker, preferring "computer security consultant."

"Don't put me in the same league as Whitely, Schreiner, Gold and all the other fame seekers," he said. "I have a job to do that I quietly get on and do without demanding certain calls, excess or notoriety. I only agreed to talk to you people to get the record straight."

So what is the record that needs straightening? Wilson doesn't see himself as the as the romantic pirate of the phone lines and looks with disgust at those who claim notoriety. He's a hard-nosed businessman selling his services to a willing market.

Wilson is 35. Just too old to have done a computer course at the southern secondary modern where he received his sketchy (his word) education. With half a dozen CSEs he scraped into the civil service as a clerical assistant and headed himself filling in forms and generally clerically assisting. By diligence, he rose a couple of grades and with cash in hand was able to buy a couple of first generation home computers.

"The Z80 was good for learning how computers work. It is a simple machine and with the extra RAM it taught me the rudiments of computing," he said. "I bought a Commodore C64 where they

came out but that was a games machine - until I got a modem from a cousin in the States. The phone bill was £341 one quarter and I had to overdraw my bank account to pay it."

He paid the phone bill and 'dabbled' in the more serious side of comms, learning more about computers when he transferred to a computer branch in the mid Eighties. By then his knowledge of computers and comms was phenomenal but he chose to hide his light under a

hushed, smiling, that any overtones he made in the regimented civil service would be either slapped or watered down.

"I wanted to travel around computer systems freely without the hindrance of a vocational requirement," he said. "At that time there were a few 'ambitious' type messages on the terminals. They thought that they were clever but like Singh, Whitely, Gold and all the other children, all that they did was vandalise the systems and make people aware that

they should increase their security."

Wilson chose a different direction. "With these acts of warden vandalism appearing in the papers, companies were beginning to get worried. They had no way to police their systems so they turned to the manufacturers. The IBM and ICLs of this world are the most guilty in the whole picture. Rather than pay good money to block up their cowardly like computers, they led to us saying telling them that their systems were secure. Now in 1990, I have got to see a secure computer."

Tragedy in Wilson's family left him with no parents but with an unexpected inheritance. He decided to take a risk and gave up his reasonably paid job. "I bought every book I could on every system that existed. I said I can

my way into seminars, ring up computer system managers pretending to be from the manufacturer and call information on their system. In one year I had two rooms full of print-outs, manuals, books and so on. All of this became expensive and the inheritance dwindled. I was down to my last few quid and it looked like I'd have to

eat humble pie and get a job. I got a piece of luck. A local firm wanted someone to run their computer system. I had to hire a suit from Moss Bros to attend the interview. The MD was worried about being 'looked' and had a healthy paranoia about his competitors hacking into his system. I got the job and he got a shock when I turned up in a lumber jacket and jeans. The suit had gone back."

Wilson burst out laughing as he remembered the 'looked'. "I got into the computer and found that it wasn't attached to any phone lines at all. It couldn't have been hacked in the conventional sense anyway. It was a mainframe and in those days there was a suite of 'user friendly' software called MISC. It was a series of programs that included the original colossal cave adventure."

"All of this guy's employees were tying up computer time and memory throwing axes at the nasty little goblins. The game took up over 300K of memory and with 20 people playing it the system slowed to a crawl. I crashed MISC and picked up a hefty bonus."

That was the mid Eighties and since then word of mouth has left Wilson in demand by a number of companies across the country.

Although he works for companies as a freelance systems man, he openly acknowledges that he lives in a grey area. "I have got over 90 per cent of my intelligence and data by devious means and often when I take on a contract, I know that some of the work will involve selling close to the legal limit. Then again, the rewards make it worth it."



higher sentence, than the prosecuting authority can now appeal.

**Q. Would you prefer stronger powers for, say, phone tapping?**

A. We are not allowed to tap telephones under the provisions of the new act.

**Q. The police have always been empowered to approach the Home Secretary and ask for interceptions on telephone**

A. For serious crimes.

**Q. Emma Nicholson intends to add new clauses to the Criminal Justice Bill. What improvements to the current act would you like to see included in them?**

A. The Criminal Justice Bill does not relate to any specific offence. It is vehicle for introducing new powers to an already existing act or indeed to create new statutes.

I think that it is too early to say at the moment whether the Computer Misuse Act will be enforceable or not. I do envisage some difficulties in its enforcement but I think in fairness we will have to wait and see how

we get on. If it's not then we can attempt to seek additional powers.

**Q. So, after the due passage of time, it could be appropriate to see if additional police powers were necessary?**

A. Yes, certainly one of the things we would be looking at closely is to see if the powers that we do have at the moment are sufficient to enforce the act properly.

**Q. How would you go about bringing a hacker to justice who is outside your jurisdiction? Someone hacking in from the States or the Continent or something.**

A. The act is quite clear on that problem of jurisdiction. It is no longer a problem. If the victim is in this country or the hacker is in this country attacking somewhere abroad, then jurisdiction lies in the United Kingdom.

**Q. But how would you bring him to justice?**

A. We would attempt to extradite him.

**Q. Is there a danger from terrorism from computer misuse?**

A. There must be a danger of terrorist activities with the use of a computer yes.

**Q. Do you have any experience of this for instance?**

A. Not on our unit, no.

**Q. Does the anti-terrorist unit liaise with you over any particular matters?**

A. I think that is a question you should put to the anti-terrorist unit.

**Q. How do you keep yourself up-to-date?**

A. Homework, basically.

**Q. Do you subscribe to journals?**

A. Yes. There are a number of organisations that send us details of modern equipment that is coming out, equally we read magazines, newspapers.

We have a very large number of contacts throughout the IT industry in all sorts of fields, who we regularly communicate with.

We are asked to give presentations on computer crime and make contact with people, so it is a constant learning game. ■

## THE HACKER'S REPLY

**Q. What do you reckon to the Computer Misuse Act?**

A. There are four policemen in the whole of the Met whose task it is to look for computer fraud. The regional forces only have a couple of hobbies seconded to that sort of work and none of them know a byte from a blunderbuss.

To give it perspective, imagine a city the size of Birmingham with two policemen responsible for policing car theft. It's enough to send you running down to B&Q for a cordless drill isn't it? (Cordless drills are car thieves' current tool.)

**Q. What percentage of hacking will the police stop?**

A. They'll pick up a few loud mouthed amateurs and publicity seekers, but no-one who matters. Until the companies and institutions get over the embarrassment factor and start reporting the crime nothing will happen.

The police will only move if a crime is notified. With Austin and his three chums covering the entire Met, they don't have much time to go looking for it.

**Q. People are regularly getting caught for messing about with JANET (Joint Academic Network) and the rest. Doesn't this show that awareness by systems managers is on the increase?**

A. Let's get this straight. JANET is a whore. It's a system designed to be accessed by students and other puerile life-forms and as such is about as secure as a paranoid schizo. Only an amateur would break into a place that you can walk through the door of anyway.

The real systems don't have helpful log lines, normal baud rates and expected protocols. The majority of places worth seeing couldn't be accessed from a standard modem and phone line. A lot of the interesting stuff lives on private phone lines and before you can look at it you

need to 'scan the line' to find out how it's being sent.

At this point, he opened his briefcase and revealed a comprehensive 'computer security kit' consisting of a baby laptop, miniature modem, cell phone, oscilloscope, antenna, fax machine and assorted diagnostic tools. He gestured at the open case.

That's insured for over £5,000 and it's the absolute minimum that a professional can get by with. But it's still like a car without an engine. You need to know what computer, what system and most important you need on-the-ground intelligence to operate."

**Q. Does the prospect of being put in prison worry you.**

A. Who by? If I jump on the ferry at Newcastle, dial into a system on my cell phone, spend a couple of hours downloading information to a computer, then get off at Dieppe, how are Austin and his trio going to catch me?

The only way they'll catch me is when I'm doing the research before the entry. Then it's not a case of logging on to anywhere, more a case of paying a visit and there were already perfectly servicable laws to stop that anyway.

**Q. What do you see as the far reaching effects of the new law?**

A. I think that the police will have shot themselves in the foot by overruling the new act in.

There's an old saying about glass houses and stones and after all one of the most commonly perceived computer misuses is of the police central criminal computer.

**Q. Would you like to enlarge on that**

A. Really

**Q. It's a serious allegation which ought to be substantiated**

A. I'm not in the business of lifting a hand that can potentially feed me.

**Q. Do you know of misuse of police computers?**

A. It depends what you call misuse. A company taking on security guards may very well feel that it is a good idea to get a local friendly police officer to run a few applicants through the computer to weed out the wicked.

It might even help the police in the long run. They'd have less villains on their patch.

**Q. Do you know that this abuse goes on?**

A. Change the subject.

**Q. What about insider hacking.**

A. Disgruntled employees have been tapped for info by rival firms, but a professional would never use one. Why pay a man to make a mess of a job that you can do elegantly yourself?

**Q. If you don't work at a firm, how can you be an insider?**

A. If you know enough about a system it doesn't take too long to get what you need. The biggest companies are easiest. No-one can know everyone. You can wander around large sites and buildings for so long without getting challenged that people get to know you. I even played for a company darts team once. I do miss subsidised canteens!

**Q. Don't you do that any more?**

A. I don't need to. I'm well known enough to pick my work. I like the jobs that have me on the inside working out. It's less risk although some of the more active contracts are well paid.

**Q. What's an active contract?**

A. A firm might bring you in to tighten up on their security with the offer of a substantial contract. That's only a taste to try you out. They are paranoid about people hitting their system, but will rub their hands with glee if your intelligence brings them info from their competitors.

**Q. What about the geographical implications of the latest act?**

A. It makes the act unworkable. If I hack into a place in Oban from Cornwall, how long will it take the Oban coppers to mobilise the Cornish police and get me lifted even if they know I'm in immediately I log on?

Cell phones make it easier and the availability of cross continental phone lines make it a doddle. If I hack from Lichfield, what can they do?

**Q. Won't Interpol help?**

A. It helps if you understand that Interpol is essentially a bureau not a task force. It is a shared bureau that police forces in different countries can use for intelligence, but on its own it has no teeth and is slow and unwieldy. And it isn't invulnerable from hacking.

**Q. Do the police after amnesty in return for help**

A. Not that I know of. That wouldn't be the British way would it?

**Q. In a sentence, can you sum up the effects of the new act**

A. It is a piece of legal crap that will catch a few misnomers and without monitoring every telephone exchange they've no chance of even getting sprats or minnows.

**Q. How much do you earn out of this game?**

A. A lot. Over £30k in the last year, but half of that was cash. I only worked about 20 weeks to get that.

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Please note all the above games are imports and may need modification to run on the official British 16 bit Sega.  
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# TECH TIPS

Does your PC keep packing up? Is your Amiga less than friendly? Would your ST try the patience of a saint? Write to Keith Pomfret's Tech Tips and we'll soon see you right. Send your sorry stories to Tech Tips, Beauford Place, 30 Monmouth Street, Bath BA1 2BW.

## ■ HELP! New life for old

I have a US model 2-year-old Datamedia Corporation Teratec machine (Model 1700 T1E) with steel case, motherboard, PSU, modem and video cards, and a blanked off hole at the front for a floppy disk drive. I think it was junked by a city dealing room.

My question: Can I make a computer out of it?

P Sinden, London

Sounds like a lovely piece of kit, but not something for which I have the technical manual lying around the office. My experience of people's attempts to extract life from second-hand dedicated kit is that it rarely works. Far better to:

1) Offer it to a collector (yes, they do exist).

2) Cannibalise it. Many a good CRT, RAM board etc has come from an old machine.

3) If you have your heart set on using it, write to the company who manufactured it for specifications and help, or to one who still uses them.

The simplest project to undertake that involves the sort of kit that you possess is a terminal for comms. Many ex-corporate computers find a second life welded to a modem.

## ■ TIP! Biggest bigot

In reply to A Dales' query in Express 93 regarding a software package that will allow Russian and English characters, the reply is very simple:

1. Sell the Amiga
2. Buy an ST
3. Buy Signum II with the relevant fonts

Being an Amiga bigot you will no doubt not print this. Having used both, unlike most of the morons in the "my computer is better than yours debate", I still prefer the ST.

P Dales, Derby

And you're entitled to your own opinion too. You have targeted an area in which the ST outshines the Amiga, unless of course any of our other readers know different?

For the record, I am not an Amiga

bigot, preferring the Apple Macintosh as a machine to work on, the Amiga and PC for recreation and my trusty Apricot F1 and Amstrad CPC for comms. I have to admit that an Archimedes is the machine to which I aspire though.

## ■ HELP! Memories

A while back, a guy wrote into Express saying his STE copped with 2.5Mb by mixing the 512Mb modules and, in some adverts (and the Atari manual), they say that configuration is impossible. Which is true?

Geoffrey Chan, Kingston upon Thames

The Wireheads on our sister magazine ST Format confirm that although it is possible to do, it involves patching the operating system to 'fool' the STE.

It's the sort of soldering iron and pliers project that we wouldn't recommend to anyone who had to ask how it's done.

## ■ HELP! Lending library

Thank you for providing me with a brilliant magazine! I am writing to you with a few questions about the Public Domain (PD).

- 1) My friend and I are about to start up an Amiga PD library and we were wondering if you could tell us if it would be OK for us to ask customers to provide their own disks until we get going.
- 2) We are going to charge around 86 pence per program/demo. This does not include the disk (as stated above) but does include plug and other minor charges.
- 3) Which do you think sells the best, demos, games or utilities?

PS. Please keep up the good work on the mag!

R Donaghey, Strabane, Co Tyrone

There are so many established Amiga PD libraries already that you'd have to offer something special to catch the attention of the discerning buyer. Many current libraries have thousands of high quality disks and huge advertising budgets to help sell their wares.

Warnings over, you can ask people to supply disks but you may find them more willing to go to libraries where this forms part of the service.

You cannot charge for PD software, only for the copying and postage. If you sell it, you are breaking the conditions assigned by the author when it was placed in the public domain.

All PD sells well as long as it's high quality and original. You wouldn't find many sales for a trivial generator as they're common as houseflies but a good shock-rem-up, utility or demo would probably be popular. The other problem you would face as a PD library is that as PD software can be copied by anyone, any original program would soon end up in other libraries.

Talk to one of the more popular PD libraries, such as George Thompson Services or Seventeen BT. I'm sure that they will warn you of the many pitfalls in this line of business.

## ■ HELP! Single driver

Please help! My time in front of my computer is at an end at the moment. I have a Tandy 1000EX with one disk drive. The problem is using programs that require the loading of two disks. After loading the first disk and attempting to load the second, the screen either goes blank or the message RUN TIME ERROR appears. Please please help!

Gordon Mackie, Loughpilly, Fife

A phone call to Tandy confirmed that the only sure way of curing the problem is to weld another drive on externally. Your manual should give you the pin configuration to allow you to have a lead made up for a proprietary drive. If you want to source the drive from Tandy, you could give its parts back-up line a ring or even drop them a line.

The phone number and address is: Tandy National Parts, Bliston Road, Wadsworth, Telephone 021-256 6101.

## ■ HELP! Membrane dead

I bought a Sinclair QL three years ago to learn to program in 68000 machine language, but after several fruitless months of trying to find a 68000 assembler I gave up and banished the QL to the loft. I recently found myself in need of a word processor and, remembering that the QL

came with one in the form of Quill, I dug it out of the loft. However it seems to have developed a fault in the keyboard because when I type, it produces garbage. Also my copy of Quill has died.

Could you tell me where I could get the keyboard fixed (I think it's the membrane that's died) and how much it would roughly cost? Where could I get another copy of Quill from? Also could I connect the QL to a Star LC-10?

David Froggatt, Sheffield

0753 888666 is the magic number that you need to sort out all problems of a QL nature. The company in question is EEC and boss Bill Richardson is the acknowledged guru of Sinclair's 8/32 bit baby. It is possible to weld the computer in question to the Star Printer and the good people at EEC will run a copy of Quill to ground for you although they may recommend a better word processor.

## ■ ADVICE! ARM v TT

You might like to point out to your colleagues in the news department of Express, that an Arc equipped with an 386Hz ARM 3 for a PDX, that is an Ascom R260 or R235 could easily outrun Atari's TT, albeit at a greater price than the R236 animals which were recently announced. Further, you might like to tell them that even if Atari's 32MHz TT is faster than 486Hz ARM 2 based Archimedes then the price/performance ratio is still won hands down by the A300E.

How about a plug for OC's Laser Direct printer?

C Eason, Leamington Spa

I might like to point it out but it seems that you've done it for me. As for the plug, I thought that particular printer had one already fitted.

It's true that the Unix Archimedes often get forgotten about. There are so many machines chasing that budget high-end market that you have to ask who is buying them. Do you know anyone with a TT, Amiga 3000, R260 or even the new IBM RISC machine? I thought not, still they are good for status swapping.

## ■ The SAM Coupé — desirable machine or lemon?

More of your Coupé quips and queries.

Is the disk controller in my Coupé peculiar to the SAM, or is it a generic device that I can get information about from a third party? I want to utilise a couple of 5.25-inch DS/DD drives that I have spare, (MGT doesn't answer the phone any more).

The controller is the VL-1772-02. It is a well documented and off-the-shelf disk controller and, as it was originally designed as a 5.25-inch drive controller, you shouldn't have too much trouble persuading it to talk to your drives.

The way that the Coupé is designed will allow you to connect straight in through the slots designed for the disk drives and run your drive cables back out under the keyboard without any modification.

### VL-1772-02 pinouts

1	Chip select
2	read/Write
3	Address 0
4	Address 1
5-12	Data access lines 0-7
13	Master Reset
14	Ground
15	Power (+5V)
16	Step
17	Direction
18	Clock
19	Read Data
20	Motor On
21	Write Gate
22	Write Data
23	Track 00
24	Index Pulse
25	Write Protect
26	Double density enable
27	Data request
28	Interrupt request

Alan Miles and Bruce Gordon stink. Talk about abandoning a sinking ship and then selling lifeboats to the passengers. Where can I get an assembler for the Coupé? I suppose we'll have to develop our own software and carry out guarantee work next.

You can get an assembler from SAM Computers Ltd at the address given elsewhere on this page. As for software development, Enigma Variations has pledged support for the machine and, even as I write, several titles are under development. There's also the Spectrum emulator, and SAM Computers can arrange guarantee work.

How do I define a numeric variable in SAM BASIC? I've tried using the conventional ways (as in other dialects of BASIC) but

have drawn a blank. What is the format and how many characters long may it be?

I'm sure MGT gets pleasure from doing the unexpected. A numeric variable in SAM BASIC can be up to 32 characters long but must start with a letter. After the start letter, the remaining spaces can be made up of letters, underlines and spaces.

I read somewhere that command codes can be accessed to provide most of BASIC's functions. I know how to do this but have no record of which codes lie up with which commands. Can you enlighten me?

According to the technical manual, the codes are as follows:

39	SIN
3A	COS
3B	TAN
3C	ASN
3D	ACS
3E	ATN
3F	LOGN
40	EXP
41	ABS
42	SGN
43	SCR
44	INT
45	USR
46	IN
47	PEEK
48	DPEEK
49	DVAR
4A	SWR
4B	BUTTON
4C	EOF
4D	PTR
4E	Reserved
4F	UDG
50	NUMBER
51	LEN
52	CODE
53	VAL\$
54	VAL
55	TRUNC\$
56	CHR\$
57	STR\$
58	BIN\$
59	HEX\$
5A	USR\$
5B	INKEY\$
5C	NOT
5D	NEGATE

SAM peripherals seem to be thin on the ground at the moment. Will MGT not be existing anymore, where can I get support for my Coupé?

A phone call to Alan Miles revealed that the mailing address for SAM Computers Ltd is: 3 Clevedon Court, Uplands, Swansea SA2 0RG.

Miles confirmed that SAM support has taken off in line order and it's receiving over 100 orders a day. This has enabled it to take on staff and, as well as supporting the existing Coupé owners, Miles said that new owners

(post MGT fiasco) were showing support for the product by buying it.

Russ Meyer of distributor Hollington Meyers agreed, saying that Coupés were selling well and that there was support for the machine.

Is there a published table of the Coupé memory map with the approximate memory locations?

The map that you want is on page 27 of the SAM technical manual and looks something like this:

FFFF	ROM's or program, variables or screen
0000	Program, variables or screen
0080	Start of channels
0086	System variables
0A00	Keyboard table
0800	Del key buffer
0800	Line interrupt colour table
0800	Palette table
0808	UDG patterns
0840	Character patterns
0810	CHARS
0810	Page allocation
0810	ALLOCT
080F	Buffer
0400	Machine stack/Floating point calculator stack
0400	STKBOT
0400	FAILDR buffer
0480	Tapo headers
0400	BASIC stack
0400	HEAPST

What are the SAM disk drive pin connections for?

The drives in the SAM are Citizen CGDC drives which the SAM disk operating system formats to 780K. The twin 32-wire Euroconnectors inside the machine are wired as follows:

1A-0V	1B-WR
2A-0V	2B-A0
3A-0V	3B-A1
4A-0V	4B-D0
5A-0V	5B-D1
6A-0V	6B-D2
7A-0V	7B-D3
8A-0V	8B-D4
9A-0V	9B-D5
10A-0V	10B-D6
11A-0V	11B-D7
12A-0V	12B-0MHz
13A-0V	13B-RST
14A-0V	14B-Not connected
15A-0V	15B-A2
16A-0V	16B-Disk 1 or Disk 2

Drive 1 connection is to the left and Drive 2 to the right as you sit at the keyboard.

Does MIDI work on the Coupé?

We reported an alleged problem with MIDI on the Coupé some time ago. To date we have only seen a Coupé running a very simple short sequence

from a test program. This was played back on a Yamaha PSS series keyboard and benefited from the 'automatic' play facilities of the PSS. Other comments in the computer press saying that the Coupé is MIDI compatible were based on the same demonstration and could be misleading.

In simple terms, to qualify as a MIDI computer there must be software that is able to polyphonically sequence, edit and take on board the data from performance and expression controllers. MIDI is a 16-channel system and to take advantage of it properly, you must be able to assign voices to those channels.

As soon as we are able to obtain a true MIDI sequencer for the Coupé, we'll report further. In the meantime, as there's no proper software, the answer still has to be no, but at least we know that the Coupé is able to squirt data out of the MIDI port now!

We'll await a working network for the Coupé too. All those lovely networking ports and no other computers to talk to... but fat.

Is there a mouse or lightpen available for the Coupé? (both were promised).

No. The mouse has been shelved for the time being but the lightpen may yet surface again.

In my friend's mag I read that MGT (the people who make the Coupé) had kicked it. I was at the time considering buying a Coupé. Now I don't know whether to go for another computer or buy a Coupé. If I get a Coupé, will I be able to get the hardware software for it? Also it's been stated it runs 70 per cent of Spectrum software. Does this include disks? Also, how do you tell which games work and which don't?

Below, courtesy of Errington Computers in Sperrymore (a useful source of SAM products), are some of the tape games that work.

A full and comprehensive list of tape and disk games doesn't seem to exist as yet — unless anyone out there knows differently.

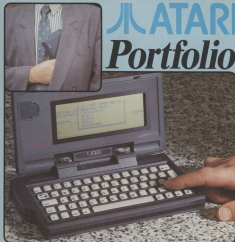
Puo Trivia, Buggy Boy, Captain Blood, Barbarian, Impossamole, Rainbow Islands, 4x4 Racing, Leaderboard, Supertrux, Thundercats, Kenny Daiglish, Knight Force, Captain Pizz, Scramble King, Earthlight, Aybobs, Hong Kong Prince, Thomas the Tank Engine, Poochy and Judy, Jungle Warfare, Darcant Simulator, Amazon Turbo King, Billy the Kid, Napoleon the Warrior, Bronx Street Cop, Saba, Ftd, Wanderboy, Tempest, Spy Vs Spy, Hopping Mad, Impossable Mission, Count Duckula, Pro Golf Simulator, Microchance, Monte Carlo Casino, Turkan.

The alignment of the tape heads is critical to the loading of some games, as is the volume level, so be prepared to try out various settings. ■

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- Peripherals:** RS 232C requires built in to take serial and parallel ports and memory expansion units.
- Size:** 11.4" x 4.1" x 1.1" (300mm x 105mm x 28mm).
- Weight:** 480 grammes (with battery).
- Applications:** calendar and diary, address and phone book, Lotus 1-2-3 compatible spreadsheet, text processor, communications software.

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power and root calculations, all with multi display, binary and hexadecimal.

#### ADDRESS BOOK & DIALLER

Portfolio has a complete address book facility that allows you to store hundreds of addresses and phone numbers. And, at the touch of a button, you can retrieve any one of them, in search for a specific grouping, such as "all Italian restaurants". And, when you are ready to book your table, hold your Portfolio to your telephone microphone and use its special built-in tone dialler to dial the number for you.

#### TEXT PROCESSOR

The Portfolio's built-in text processor program

includes word wrap, line and column counts, string search, in fact most of the functions you would find in a word processor. It handles printer and word processor control codes and allows easy transfer of files between Portfolio and your desktop PC.

#### SPREADSHEET

For real calculating power, the Portfolio has a Lotus 1-2-3 compatible spreadsheet built-in. It has 127 columns x 255 rows and read/write files via V.8 and V.8.5 files, so you can transfer data to and from Lotus 1-2-3 on your desktop PC. The Portfolio's 256K ROM includes MS-DOS and PC BIOS compatible system software.

### COMING SOON!

In addition to the excellent software built-in to the Portfolio First of Charge (see right), other software and peripherals products, such as the sophisticated Pocket Finance package and serial communications interfaces are available. And it doesn't stop there. Many manufacturers have recognised the potential of the Portfolio and have already started to design new peripherals and software. Products currently under development include: Serial interface with business systems, Apple Macintosh interfaces, business, utility and programming software plus a range of adventure and battle strategy games. For further free details on the Portfolio range, fill in the coupon below and return it to Silica Systems now.



#### MEMORY CARDS

Portfolio can store and retrieve data and programs from a one-time, or from an erasable, credit card size memory card, which can store up to 128K of data. The cards are available in 32K, 64K and 128K, as you require a library of data in your pocket. The card drive also accepts ROM cards, which allow complete customisation software.



#### POWER SUPPLY

Portfolio is powered by three AA batteries which will run for up to 100 hours with normal use, or for the night using an adapter. All the peripherals take their power from the Portfolio, so no extra batteries or adaptors are required. If battery life is running low, the device will advise you that information is not safe when the batteries are changed.



#### INTERFACES & PERIPHERALS

Portfolio can communicate with other computers and networks a growing range of peripherals via a built-in RS 232C connector. Peripherals available include serial and parallel printers, modems, and monitors. For more details, you can also send a hard drive to your desktop PC, to enable it to interface to Portfolio cards.

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Before you decide when to buy your new Atari Portfolio, we suggest you think very carefully about WHERE you buy it. Consider what it will take a few months after buying your Portfolio, when you may require additional peripherals or services, to help and advice with your new purchase. And, will the company you buy from contact you with details of new Portfolio products? At Silica Systems, we ensure that you will have nothing to worry about. Silica Systems is a new division of Silica Group, the UK's leading Atari specialists. This new division has been established to provide a service to the more serious home user, as well as to business and education purchasers. Since have been established for over 12 years, we have an annual turnover of £15 million. With our unparalleled experience and expertise, we claim to meet our customers requirements with an understanding which is second to none. So don't just take our word for it. Compare and return the coupon now, for our latest free literature and begin to experience the "Silica Systems Service".

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 Tel (Home): \_\_\_\_\_ Tel (Work): \_\_\_\_\_  
 Company Name: \_\_\_\_\_  
 Which computer(s), if any, do you own? \_\_\_\_\_  
 Postcode: \_\_\_\_\_

## ■ In the red corner

I have been reading computer maps for weeks wondering what make of computer to purchase. I had all but decided on the Atari 1040STE business pack when, whom bang, you recommend the Amiga 506 in this week's *New Computer Express*. Why does the Amiga win by a long head please?

I want a word processor, possibly Protext, a DTP program plus games availability - but majoring on business software for home use.

What makes the Amiga special? I look forward to your reply.  
C Day, Greenford, Middlesex

The Amiga multi-tasks as a matter of course. It has a far superior specification, doesn't rely on the same sound chip as bits and old arcade machines, can do back flips, somersaults, take a cake, fly an aircraft and is generally a more desirable acquisition.

Page Setter U. Protext and all the best games with the best sounds and graphics, more potential to expand... need I say any more? Then again if you've got real cash burning a hole in your pocket you could always buy an Archimedes, (the A3000 Learning Curve pack looks tasty).

## ■ Boxing clever

After reading of Philip Cole's idea of economical 3-inch disk storage in *Express* 93, I feel the man could do with some advice.

A second-hand oak wardrobe (£7.45 from any good Asda/Convenience shop) will hold 4,456 (cased) or 8,937 (uncased) disks, and there is often a little drawer in which to store your collection of missing address marks. I have two and I cannot get into the room, thus saving electricity, my eyesight and wear-and-tear.

I think you will agree that, worked out as a price-per-disk storage tale, this represents a significant improvement in value for money on Mr Cole's CD box and, while pedants would note that an oak wardrobe may not be as portable as a CD box, I would respectfully suggest that only a nifty would want to carry 4,456 (cased) or 8,937 (uncased) disks around with him, anyway.

H. Jorgans, Preston, Manchester

While we're grateful for your ideas you were in fact piped to the post by our research and development team who have solved the portability problem with adjustable racking in a Bedford park-n-rick. This movable disk box can hold in excess of 30,000 5.25-inch disks or proportionally more of the 3- or 3.5-inch disks.

## ■ Star spangled blotter

As usual, those given to jangling social catch phrases in your pages simultaneously reveal a total misunderstanding



of the issue on which they comment.

Steve Carey's assertion that the low price of ST add-ons is due to the weakness of the pound, is wrong on two counts: A, the pound is stronger at the moment than it has been for years, being worth almost two US dollars as I write, and B, a weak pound would of course cause imported items to cost more, not less.

Part of the recently plummeting cost of computers and related items is indeed due to currency movements; the pound sterling having gained value against all other currencies in the last few months, including the dollar, yen, and Deutschmark. By all means 'blame' Mrs Thatcher for this.

John Davidson, Tetbury, Gloucestershire

Just when we thought life had kept on the plane with its countermans and fowl off to the Gulf, he leaps from the bushes and attacks one of our columnists with all the skill and determination of the Fifth Airborne.

Wouldn't it have been more gentlemanly to point out a man's mistake in a private letter instead of a public forum or is that how things are still done in the colonies?

## ■ Staircase snobbery

I recently upgraded my computer from an Atari ST to an Amiga. Why I did this has no real relevance. However, in just the few weeks I have owned this machine, I have noticed something remarkable.

Let me explain. When I had a Spectrum, we 'Species' always went out of our way to say that 'our' machine was better than the C64. When I moved up to the Atari ST a few years ago, all Atarians went out of their way to compare it favourably against the Amiga.

Now what I've discovered is that most Amiga people give the Atari a very hard time but hardly ever say anything about the ST. Odd, isn't it? Odd how the 'lesser' computers only slag down those that are just a bit better than their own.

# EXPRESS MAIL

Write and tell us what you think about anything under the Sun! Reach us at: **Express Mail, 30 Monmouth Street, Bath BA1 2BW.** Sorry, no personal replies, even with an SAE, as we're too busy writing the magazine. Replies this week by Keith Pomfret.

So, just to add fuel to the fire, I think that we can safely say that Amigas are better than STs, which in turn are better than C64s which in turn are better than Spectrums. Oh yes, just 'cause I own an Amiga doesn't mean I think it's the best thing since sliced bread. If I had one and a half grand lying around I would buy a second hand Vax, but then I'd have to put up with HP and Bill users slugging me off.  
S. Waldron, Kings Lynn, Norfolk

But then there are always the Macintosh users who have nothing to aspire to and therefore nothing to slag off. (or so they tell me).

## ■ Tough of the top

Being an Archimedes owner is tough! You know you've got a great machine but owners of lesser machines won't take you seriously - "Yeah, it's a great shame there's no software for it".

Well, although quantity of commercial is less than 'these' machines, it is rapidly increasing and quality is without question! But I've found a source of excellent software (SMB), and many people willing to help in any computer matters, be it programming, DTG, RISC OS or whatever. The source is of course bulletin boards and the two I use constantly are:

MOAH - 0373 673322  
CRYTON - 0748 679794 or 0748 670030

The range of software, and the sheer number of people willing to help is fantastic! So if you've got an Arc, no software and no friends, buy a modem! The only down side to all this is Mr BT makes a packet, but one eye on the screen the other on the clock and you should be OK. Long live the Arc and long live the ever supportive BBSs.  
M. Hux, Farnborough, Bristol

We couldn't agree more. Assuming that the A3000 and its big brother the Archimedes get the software support they deserve, it could only be a matter of time before all the ST owners

have saved up and bought Amigas, the Amiga owners have bought A3000s and the Archimedes owners are saying "Told You So!"

## ■ White rabbit

Harvey Kessel's idea that the 8-biters are holding up advances in computer technology is complete balderdash. The group of people guilty of this are the fools who believe consoles to be inflexible machines unworthy of a mention in *New Computer Express*!

OK, a console isn't strictly speaking a computer! You can't do most of the things that you'd usually expect to be able to use a computer for, such as word processing, programming, DTP etc.

However, much as we hate to admit it, some of the games consoles can easily outdo even the most advanced of the home computers!

R. Morris, Sutton Coldfield, West Midlands

Point taken. Some of the consoles are indeed fine graphics engines, with the ability to out play dedicated computers but of limited use other than for simple entertainment. ■

## NEXT WEEK

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